

**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**
Public Works and Government Services Canada
ATB Place North Tower
10025 Jasper Ave./10025 ave. Jasper
5th floor/5e étage
Edmonton
Alberta
T5J 1S6
Bid Fax: (780) 497-3510

REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet Expansion and Redevelopment of the	
Solicitation No. - N° de l'invitation ET025-160469/A	Date 2015-09-22
Client Reference No. - N° de référence du client CBSA ET025-160469	
GETS Reference No. - N° de référence de SEAG PW-\$PWU-601-10574	
File No. - N° de dossier PWU-5-38134 (601)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-11-03	Time Zone Fuseau horaire Mountain Standard Time MST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Poot (RPC), Marc	Buyer Id - Id de l'acheteur pwu601
Telephone No. - N° de téléphone (780) 910-1215 ()	FAX No. - N° de FAX (780) 497-3510
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF PUBLIC WORKS AND GOVERNMENT SERVICES CANADA 100-167 LOMBARD AVE WINNIPEG Manitoba R3B0T6 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Public Works and Government Services Canada
ATB Place North Tower
10025 Jasper Ave./10025 ave Jasper
5th floor/5e étage
Edmonton
Alberta
T5J 1S6

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation

ET025-160469/A

Client Ref. No. - N° de réf. du client

CBSA ET025-160469

Amd. No. - N° de la modif.

File No. - N° du dossier

PWU-5-38134

Buyer ID - Id de l'acheteur

pwu601

CCC No./N° CCC - FMS No/ N° VME

SEE ATTACHED

REQUEST FOR PROPOSAL (RFP)

TABLE OF CONTENTS

The following is intended to clarify the general structure of the whole document.

Front Page

SUPPLEMENTARY INSTRUCTIONS TO PROPONENTS (SI)

SI1	Introduction
SI2	Proposal Documents
SI3	Questions or Request for Clarifications
SI4	Canada's Trade Agreements
SI5	Certifications
SI6	Workers Compensation
SI7	Web Sites

TERMS, CONDITIONS AND CLAUSES

AGREEMENT

SUPPLEMENTARY CONDITIONS (SC)

SC1	Workplace Safety and Health Requirements
-----	------------------------------------------

Agreement Particulars

Appendix A - Team Identification Format

Appendix B - Declaration/Certifications Form

Appendix C - Price Proposal Form

Appendix D - Submission Requirements and Evaluation (SRE)

Appendix E - Terms of Reference

Appendix F - Terms of Reference Appendices (A. – E.)

Appendix G - General Procedures & Standards

Appendix H - Additional Documents

P1 – ESA

SUPPLEMENTARY INSTRUCTIONS TO PROPONENTS (SI)

SI1 INTRODUCTION

1. Public Works and Government Services Canada (PWGSC) intends to retain an individual consulting firm or joint venture to provide the professional services for the project as set out in this Request for Proposal (RFP).
2. This is a single phase selection process. The nature of the requirement and the anticipated limited number of response by the industry leads PWGSC to believe that this approach will not unduly force a large number of firms to expend an overall unreasonable amount of effort in response to PWGSC.
3. Proponents responding to this RFP are requested to submit a full and complete proposal. The proposal will cover not only the qualifications, experience and organization of the proposed Consultant Team, but also the detailed approach to the work, and the pricing and terms offered. A combination of the technical and price of services submissions will constitute the proposal.

SI2 PROPOSAL DOCUMENTS

1. All instructions, general terms, conditions and clauses identified in the RFP by number, date and title, are hereby incorporated by reference into and form part of this solicitation and any resultant contract.

All instructions, general terms, conditions and clauses identified in the RFP by number, date and title, are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

2. The following are the proposal documents:
 - (a) Supplementary Instructions to Proponents (SI); R1410T (2015-07-03), General Instructions (GI) – Architectural and/or Engineering Services – Request for Proposal; Submission Requirements and Evaluation (SRE);
 - (b) the general terms, conditions and clauses, as amended, identified in the Agreement clause;
 - (c) Terms of Reference;
 - (d) the document entitled "General Procedures and Standards";
 - (e) any amendment to the solicitation document issued prior to the date set for receipt of proposals; and
 - (f) the proposal, Declaration/Certifications Form and Price Proposal Form.
3. Submission of a proposal constitutes acknowledgment that the Proponent has read and agrees to be bound by these documents.

SI3 QUESTIONS OR REQUEST FOR CLARIFICATION

Questions or requests for clarification during the solicitation period must be submitted in writing to the Contracting Authority named on the RFP - Page 1 as early as possible. Enquiries should be received no later than 5 working days prior to the closing date identified on the front page of the Request for Proposal. Enquiries received after that date may not be answered prior to the closing date of the solicitation.

SI4 CANADA'S TRADE AGREEMENTS

This procurement is subject to the provisions of the North American Free Trade Agreement (NAFTA), the World Trade Organization - Agreement on Government Procurement (WTO-AGP).

SI5 CERTIFICATIONS

1. Integrity Provisions – Declaration of Convicted Offences

As applicable, pursuant to subsection Declaration of Convicted Offences, of section 01 of the General Instructions, the Proponent must provide with its bid, a completed Declaration Form, to be given further consideration in the procurement process.

2. Federal Contractors Program for Employment Equity - Proposal Certification

By submitting a proposal, the Proponent certifies that the Proponent, and any of the Proponent's members if the Proponent is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from Employment and Social Development Canada (ESDC) - Labour's website.

Canada will have the right to declare a proposal non-responsive if the Proponent, or any member of the Proponent if the Proponent is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

SI6 WORKERS COMPENSATION

1. The recommended Proponent shall provide to the Contracting Authority, prior to Contract award:

- a) a Workers Compensation Board letter of good standing, also listing covered Directors, Principals, Proprietor(s) or Partners who will be or who are anticipated to be present on the work site(s).

2. The recommended Proponent shall deliver all of the above documents to the Contracting Authority on or before the date stated (usually 3-5 days after notification) by the Contracting Authority. Failure to comply with the request may result in the proposal being declared non-compliant

SI7 - WEBSITES

The connection to some of the Web sites in the RFP is established by the use of hyperlinks. The following is a list of the addresses of the Web sites:

Employment Equity Act
<http://laws-lois.justice.gc.ca/eng/acts/E-5.401/index.html>

Federal Contractors Program (FCP)
http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/index.shtml

Certificate of Commitment to Implement Employment Equity form LAB 1168

<http://www.servicecanada.gc.ca/cgi-bin/search/eforms/index.cgi?app=profile&form=lab1168&dept=sc&lang=e>

Code of Conduct for Procurement

<http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>

Lobbying Act

<http://laws-lois.justice.gc.ca/eng/acts/L-12.4/?noCookie>

Contracts Canada

<https://buyandsell.gc.ca/>

Supplier Registration Information

<https://srisupplier.contractsCanada.gc.ca>

Consultant Performance Evaluation Report Form

<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/2913-1.pdf>

Canadian economic sanctions

<http://www.international.gc.ca/sanctions/index.aspx?lang=eng>

National Joint Council (NJC) Travel Directive

<http://www.njc-cnm.gc.ca/directive/travel-voyage/index-eng.php>

TERMS, CONDITIONS AND CLAUSES

AGREEMENT

1. The Consultant understands and agrees that upon acceptance of the offer by Canada, a binding Agreement shall be formed between Canada and the Consultant and the documents forming the Agreement shall be the following:
 - (a) the Front Page and this Agreement clause;
 - (b) the General Terms, Conditions and Clauses, as amended, identified as:
 - R1210D (2015-07-09), General Condition (GC) 1 - General Provisions – Architectural and/or Engineering Services
 - R1215D (2014-06-26), General Condition (GC) 2 - Administration of the Contract
 - R1220D (2015-02-25), General Condition (GC) 3 - Consultant Services
 - R1225D (2015-04-01), General Condition (GC) 4 - Intellectual Property
 - R1230D (2015-02-25), General Condition (GC) 5 - Terms of Payment
 - R1235D (2011-05-16), General Condition (GC) 6 - Changes
 - R1240D (2011-05-16), General Condition (GC) 7 - Taking the Services Out of the Consultant's Hands, Suspension or Termination
 - R1245D (2012-07-16), General Condition (GC) 8 - Dispute Resolution
 - R1250D (2015-02-25), General Condition (GC) 9 - Indemnification and Insurance
 - (c) Supplementary Conditions
 - (d) Agreement Particulars
 - (e) Terms of Reference;
 - (f) the document entitled "General Procedures and Standards";
 - (g) any amendment to the solicitation document incorporated in the Agreement before the date of the Agreement;
 - (h) the proposal, the Declaration/Certifications Form and the Price Proposal Form.
2. The documents identified above by title, number and date are hereby incorporated by reference into and form part of this Agreement, as though expressly set out herein, subject to any other express terms and conditions herein contained.

The documents identified above by title, number and date are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>
3. If there is a discrepancy between the wording of any documents that appear on the following list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.
 - (a) any amendment or variation in the Agreement that is made in accordance with the terms and conditions of the Agreement;
 - (b) any amendment to the solicitation document incorporated in the Agreement before the date of the Agreement;
 - (c) this Agreement clause;
 - (d) Supplementary Conditions;
 - (e) General Terms, Conditions and Clauses;
 - (f) Agreement Particulars;
 - (g) Terms of Reference;
 - (h) the document entitled "General Procedures and Standards";
 - (i) the proposal.

SUPPLEMENTARY CONDITIONS (SC)

SC1 Workplace Safety and Health Requirements

Employer/Prime Consultant

1. During the Design Stage
 - a) The Consultant shall, where the Consultant is working on Federal property and is in control of the work site (no Federal presence or construction contractor), for the purposes of the applicable provincial or territorial Occupational Health & Safety Acts and Regulations, and for the duration of the Work of the Contract:
 - i) act as the Employer, where the Consultant is the only employer on the work site, in accordance with the Authority Having Jurisdiction;
 - ii) assume the role of Prime Consultant, where there are two or more employers (including sub-consultants) involved in work at the same time and space at the work site, in accordance with the Authority Having Jurisdiction; and
2. During the Construction Stage
 - a) The Consultant shall, for the purposes of the Occupational Health & Safety Acts and Regulations, and for the duration of the Work of the Contract, agree to accept that the Construction Contractor is the Principal/Prime Contractor, and to conform to that Contractor's Site Specific Health and Safety Plan.

AGREEMENT PARTICULARS

The Agreement Particulars will be issued at time of award of contract and will identify the fee to be paid to the Consultant for the services determined in the Price Proposal Form.

APPENDIX A - TEAM IDENTIFICATION FORMAT

For details on this format, please see SRE in the Request For Proposal.

The prime consultant and other members of the Consultant Team shall be, or eligible to be, licensed, certified or otherwise authorized to provide the necessary professional services to the full extent that may be required by provincial or territorial law.

I. Prime Consultant (Proponent - Architect):

Firm or Joint Venture Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....

II. Key Sub Consultants / Specialists/Own Forces:

Civil Engineer

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....

Structural Engineer

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....

Mechanical Engineer

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....
.....

Electrical Engineer (with expertise in security systems)

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....
.....

Transportation Engineering Specialist

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....
.....

Landscape Architect

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....
.....

Cost Estimator

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....
.....

Sustainable Design Specialist

Firm Name:
.....
.....

Key Individuals and provincial professional licensing status and/or professional accreditation:

.....
.....
.....
.....
.....

APPENDIX B - DECLARATION/CERTIFICATIONS FORM

Project Title: Canadian Border Services Agency, North Portal, Saskatchewan
Expansion and Redevelopment of the North Portal Port of Entry,

Project Number: R.065684.001

Name of Proponent: _____

Street Address: _____

Mailing Address: _____

Telephone Number: () _____

Fax Number: () _____

E-Mail: _____

Procurement Business Number: _____

Type of Organization: _____ Sole Proprietorship _____ Partnership _____ Corporation _____ Joint Venture	Size of Organization: Number of Employees _____ Graduate Architects / Professional Engineers _____ Other Professionals _____ Technical Support _____ Other _____
--------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Former Public Servant (FPS) - Certification

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, proponents must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of proposals is completed, Canada will inform the Proponent of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the proposal non-responsive.

Definitions

For the purposes of this clause,

"former public servant" is any former member of a department as defined in the *Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- (a) an individual;
- (b) an individual who has incorporated;
- (c) a partnership made of former public servants; or
- (d) a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the *Public Service Superannuation Act* (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the *Supplementary Retirement Benefits Act*, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the *Canadian Forces Superannuation Act*, R.S., 1985, c.C-17, the *Defence Services Pension Continuation Act*, 1970, c.D-3, the *Royal Canadian Mounted Police Pension Continuation Act*, 1970, c.R-10, and the *Royal Canadian Mounted Police Superannuation Act*, R.S., 1985, c.R-11, the *Members of Parliament Retiring Allowances Act*, R.S., 1985, c.M-5, and that portion of pension payable to the *Canada Pension Plan Act*, R.S., 1985, c.C-8.

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Proponent a FPS in receipt of a pension?

YES (☐) NO (☐)

If so, the Proponent must provide the following information, for all FPS in receipt of a pension, as applicable:

- (a) name of former public servant;
- (b) date of termination of employment or retirement from the Public Service.

By providing this information, proponents agree that the successful Proponent's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

Work Force Adjustment Directive

Is the Proponent a FPS who received a lump sum payment pursuant to the terms of a work force reduction program? YES (☐) NO (☐)

If so, the Proponent must provide the following information:

- (a) name of former public servant;
- (b) conditions of the lump sum payment incentive;
- (c) date of termination of employment;
- (d) amount of lump sum payment;
- (e) rate of pay on which lump sum payment is based;
- (f) period of lump sum payment including start date, end date and number of weeks;
- (g) number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

APPENDIX B - DECLARATION/CERTIFICATIONS FORM (CONT'D)

Name of Proponent: _____

DECLARATION:

I, the undersigned, being a principal of the proponent, hereby certify that the information given on this form and in the attached proposal is accurate to the best of my knowledge. If any proposal is submitted by a partnership or joint venture, then the following is required from each component entity.

.....
name signature

.....
title

I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture

.....
name signature

.....
title

I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture

.....
name signature

.....
title

I have authority to bind the Corporation / Partnership / Sole Proprietorship / Joint Venture

During proposal evaluation period, PWGSC contact will be with the following person: _____.

Telephone Number: () _____ Fax Number: () _____

E-mail: _____

This Appendix "B" should be completed and submitted with the proposal, but may be submitted afterwards as follows: if Appendix "B" is not completed and submitted with the proposal, the Contracting Authority will inform the Proponent of a time frame within which to provide the information. Failure to comply with the request of the Contracting Authority and to provide the certifications within the time frame provided will render the proposal non-responsive.

APPENDIX C - PRICE PROPOSAL FORM

INSTRUCTIONS: Complete this Price Proposal Form and submit in a **separate sealed envelope** with the Name of Proponent, Name of Project, PWGSC Solicitation Number, and the words "PRICE PROPOSAL FORM" typed on the outside of the envelope. Price Proposals are not to include Applicable Taxes.

PROPOSERS SHALL NOT ALTER THIS FORM

Project Title: North Portal, Saskatchewan, Architectural and Engineering Services, Expansion and Redevelopment of the North Portal Port of Entry
Project No: R.065684.001

Name of Proponent: _____

The following will form part of the evaluation process:

REQUIRED SERVICES

1. **Fixed Fee** (R1230D (2015-02-25), GC 5 -Terms of Payment) including Disbursements - GC 5.12.

SERVICES

FIXED FEE

As identified in the Terms of Reference
(excluding full time resident site supervision)

\$ _____

2. **Time Based Fees** (R1230D (2015-02-25), GC 5 - Terms of Payment)

FULL TIME RESIDENT SITE SUPERVISION*	ESTIMATED HOURS Column A	HOURLY RATES Column B**	TIME BASED FEE Columns AxB
Full time resident site supervision to provide field review services during paving work (Terms of Reference 1.5.1.3)	75	\$ _____	\$ _____
MAXIMUM TIME BASED FEES			\$ _____

*Payment will be based on actual hours spent. Travel time and/or expenses will not be reimbursed separately (Refer to R1230D (2015-02-25), GC 5.12 – Disbursements).

**All inclusive hourly rate is applicable to both normal working hours and any other shift work as required.

1. Fixed Fee	2. Time Based Fees	Total 1. + 2.
\$ _____ +	\$ _____ +	= \$ _____

APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

The following will NOT form part of the evaluation process

Canada may accept or reject any of the following fees, disbursements and/or hourly rates. Canada reserves the right to negotiate on these fees, disbursements and/or hourly rates.

THE FOLLOWING HOURLY RATES MAY BE USED FOR FUTURE CONTRACT AMENDMENTS

Principals

Name	\$ per hour
.....	\$.....
.....	\$
.....	\$
.....	\$
.....	\$.....
.....	\$
.....	\$
.....	\$
.....	\$.....
.....	\$

APPENDIX C - PRICE PROPOSAL FORM (CONT'D)

THE FOLLOWING HOURLY RATES MAY BE USED FOR FUTURE CONTRACT AMENDMENTS

Canada may accept or reject any of the following fees, disbursements and/or hourly rates. Canada reserves the right to negotiate on these fees, disbursements and/or hourly rates.

The following will NOT form part of the evaluation process

Staff

Name / Position	\$ per hour
.....	\$.....
.....	\$.....
.....	\$.....
.....	\$.....
.....	\$.....
.....	\$.....
.....	\$.....
.....	\$.....
.....	\$.....
.....	\$.....

END OF PRICE PROPOSAL FORM

APPENDIX D

SUBMISSION REQUIREMENTS AND EVALUATION

- SRE 1 General Information
- SRE 2 Proposal Requirements
- SRE 3 Submission Requirements and Evaluation
- SRE 4 Price of Services
- SRE 5 Total Score
- SRE 6 Submission Requirements - Checklist

SUBMISSION REQUIREMENTS AND EVALUATION

SRE 1 GENERAL INFORMATION

1.1 Reference to the Selection Procedure

An 'Overview of the Selection Procedure' can be found in R1410T General Instructions to Proponents (GI3).

1.2 Calculation of Total Score

For this project the Total Score will be established as follows:

$$\begin{array}{rcl} \text{Technical Rating x 90\%} & = & \text{Technical Score (Points)} \\ \text{Price Rating x 10\%} & = & \text{Price Score (Points)} \\ \hline \text{Total Score} & = & \text{Max. 100 Points} \end{array}$$

SRE 2 PROPOSAL REQUIREMENTS

2.1 Requirement for Proposal Format

The following proposal format information should be implemented when preparing the proposal.

- Submit one (1) bound original plus five (5) bound copies of the proposal
- Paper size should be - 216mm x 279mm (8.5" x 11")
- Minimum font size - 11 point Times or equal
- Minimum margins - 12 mm left, right, top, and bottom
- Double-sided submissions are preferred
- One (1) 'page' means one side of a 216mm x 279mm (8.5" x 11") sheet of paper
- 279mm x 432 mm (11" x 17") fold-out sheets for spreadsheets, organization charts etc. will be counted as two pages.
- The order of the proposals should follow the order established in the Request for Proposal SRE section

2.2 Specific Requirements for Proposal Format

The maximum number of pages (including text and graphics) to be submitted for the Rated Requirements under SRE 3.2 is Twenty-five (25) pages.

The following are not part of the page limitation mentioned above;

- Covering letter
- Consultant Team Identification (Appendix A)
- Declaration/Certifications Form (Appendix B)
- Code of Conduct Certifications
- Front page of the RFP
- Front page of revision(s) to the RFP
- Price Proposal Form (Appendix C)

Consequence of non-compliance: any pages which extend beyond the above page limitation and any other attachments will be extracted from the proposal and will not be forwarded to the PWGSC Evaluation Board members for evaluation.

SRE 3 SUBMISSION REQUIREMENTS AND EVALUATION

3.1 MANDATORY REQUIREMENTS

Failure to meet the mandatory requirements will render the proposal as non-responsive and no further evaluation will be carried out.

3.1.1 Licensing, Certification or Authorization

The proponent shall be an Architect, licensed, or eligible to be licensed, certified or otherwise authorized to provide the necessary professional services to the full extent that may be required by provincial or territorial law in the province of Manitoba.

3.1.2 Consultant Team Identification

The consultant team to be identified must include the following:

Proponent (prime consultant): Architect

Key Sub-consultants / Specialists/ Own Forces:

Civil Engineer

Structural Engineer

Mechanical Engineer

Electrical Engineer (with expertise in security systems)

Transportation Engineering Specialist

Landscape Architect

Cost Estimator

Sustainable Design Specialist

Information required - name of firm, key personnel to be assigned to the project. For the prime consultant indicate current license and/or how you intend to meet the provincial or territorial licensing requirements. In the case of a joint venture identify the existing or proposed legal form of the joint venture (refer to R1410T General Instructions to Proponents, GI9 Limitation of Submissions).

An example of an acceptable format (typical) for submission of the team identification information is provided in Appendix A.

3.1.3 Declaration/Certifications Form

Proponents must complete, sign and submit the following:

- Appendix B, Declaration/Certifications Form as required.

3.1.4 Integrity Provisions – List of Names

Proponents who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Proponent. Proponents bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s). Proponents bidding as societies, firms, or partnerships do not need to provide lists of names. If the required list of names has not been received by the time the evaluation of bids is completed, Canada will inform the Proponent of a time frame within which to provide the information. Failure to provide the names within the time frame specified will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

3.2 RATED REQUIREMENTS

3.2.1 Achievements of Proponent on Projects

Describe the Proponent's accomplishments, achievements and experience as prime consultant on projects.

Select a **maximum** of 3 projects undertaken within the last 6 years. Joint venture submissions are not to exceed the maximum number of projects. Only the first 3 projects listed in sequence will receive consideration and any others will receive none as though not included.

Information that should be supplied:

- clearly indicate how this project is comparable/relevant to the requested project.
- brief project description and intent. Narratives should include a discussion of design approach to meet the intent, design challenges and resolutions.
- budget control and management - i.e. contract price & final construction cost - explain variation
- project schedule control and management - i.e. initial schedule and revised schedule - explain variation
- client references - name, address, phone and fax of client contact at working level - references may be checked
- names of key personnel responsible for project delivery
- awards received

The Proponent (as defined in R1110T General Instructions to Proponents, GI2 Definitions) must possess the knowledge on the above projects. Past project experience from entities other than the Proponent will not be considered in the evaluation unless these entities form part of a joint venture Proponent.

Please indicate those projects which were carried out in joint venture and the responsibilities of each of the involved entities in each project.

3.2.2 Achievements of Key Sub-consultants and Specialists on Projects

Describe the accomplishments, achievements and experience either as prime consultant or in a sub-consultant capacity on projects. If the Proponent proposes to provide multi-disciplinary services which might otherwise be performed by a sub-consultant, this should be reflected here.

Select a **maximum** of 2 projects undertaken within the last 6 years per key sub consultant or specialist. Only the first 2 projects listed in sequence (per key subconsultant or specialist) will receive consideration and any others will receive none as though not included.

Information that should be supplied:

- clearly indicate how this project is comparable/relevant to the requested project.
- brief project description and intent. Narratives should include a discussion of design approach to meet the intent, design challenges and resolutions.
- budget control and management
- project schedule control and management
- client references - name, address, phone and fax of client contact at working level - references may be checked
- names of key personnel responsible for project delivery
- awards received

3.2.3 Achievements of Key Personnel on Projects

Describe the experience and performance of key personnel to be assigned to this project regardless of their past association with the current proponent firm. This is the opportunity to emphasize the strengths of the individuals on the team, to recognize their past responsibilities, commitments and achievements.

Information that should be supplied for each key personnel:

- professional accreditation
- accomplishments/achievements/awards
- relevant experience, expertise, number of years experience
- role, responsibility and degree of involvement of individual in past projects

3.2.4 Understanding of the Project:

The proponent should demonstrate understanding of the goals of the project, the functional/technical requirements, the constraints and the issues that will shape the end product.

Information supplied should reflect an understanding of:

- The functional and technical requirements of the project
- The importance / relevance of existing reference documents.
- Significant issues, challenges and constraints
- Project schedule and cost.
- Items which constitute risk to project schedule and cost.
- Canada Border Service Agency's values
- Broader federal government goals (sustainable design, life-cycle costing, etc)

3.2.5 Scope of Services:

The proponent should demonstrate an understanding of the professional services required and provide a plan of action.

Information supplied should include:

- Scope of Services - detailed list of services
- Work Plan - detailed breakdown of work tasks and deliverables
- Project schedule - proposed major milestone schedule
- Risk management strategy

3.2.6 Management of Services:

The Proponent should describe how he /she proposes to perform the services and meet the constraints; how the services will be managed to ensure continuing and consistent control as well as production and communication efficiency; how the team will be organized and how it will fit in the existing structure of the firms; to describe how the team will be managed. The proponent is also to identify sub-consultant disciplines and specialists required to complete the consultant team.

If the Proponent proposes to provide multi-disciplinary services which might otherwise be performed by a sub-consultant, this should be reflected here.

Information supplied should include:

- Makeup of the full project team including the names of the prime consultant, sub-consultants and specialists and their roles and responsibilities on the project.
- Organization chart showing names and position titles of Consultant team and federal stakeholders, reporting relationships.
- Personnel back-up (in the event a team member is away)
- Communication strategies
- Response time (both standard requests and emergencies)

3.2.7 Design Approach / Methodology

This is an opportunity for the Proponent to state the overall design approach of the Consultant team as well as their approach to resolving design issues and in particular to focus on the unique aspects and challenges of the project.

Information supplied should include:

- A description of the Proponent's Design Approach / Methodology
- A description of the major project challenges and how the Proponent's design approach will be applied to those particular challenges.

3.3 EVALUATION AND RATING

In the first instance, price envelopes will remain sealed and only the technical components of the proposals which are responsive will be reviewed, evaluated and rated by a PWGSC Evaluation Board in accordance with the following to establish Technical Ratings:

Criterion	Weight Factor	Rating	Weighted Rating
3.2.1) Achievements of Proponent	2.0	0 - 10	0 - 20
3.2.2) Achievements of Key Sub-consultants / Specialists	1.0	0 - 10	0 - 10
3.2.3) Achievements of Key Personnel on Projects	2.0	0 - 10	0 - 20
3.2.4) Understanding of the Project	1.5	0 - 10	0 - 15
3.2.5) Scope of Services	1.0	0 - 10	0 - 10
3.2.6) Management of Services	1.0	0 - 10	0 - 10
3.2.7) Design Approach / Methodology	1.5	0 - 10	0 - 15
Technical Rating	10.0		0 - 100

Generic Evaluation Table

PWGSC Evaluation Board members will evaluate the strengths and weaknesses of the Proponent's response to the evaluation criteria and will rate each criterion with even numbers (0, 2, 4, 6, 8 or 10) using the generic evaluation table below:

	INADEQUATE	WEAK	ADEQUATE	FULLY SATISFACTORY	STRONG
0 point	2 points	4 points	6 points	8 points	10 points
Did not submit information which could be evaluated	Lacks complete or almost complete understanding of the requirements.	Has some understanding of the requirements but lacks adequate understanding in some areas of the requirements.	Demonstrates a good understanding of the requirements.	Demonstrates a very good understanding of the requirements.	Demonstrates an excellent understanding of the requirements.
	Weaknesses cannot be corrected	Generally doubtful that weaknesses can be corrected	Weaknesses can be corrected	No significant weaknesses	No apparent weaknesses
	Proponent do not possess qualifications and experience	Proponent lacks qualifications and experience	Proponent has an acceptable level of qualifications and experience	Proponent is qualified and experienced	Proponent is highly qualified and experienced
	Team proposed is not likely able to meet requirements	Team does not cover all components or overall experience is weak	Team covers most components and will likely meet requirements	Team covers all components - some members have worked successfully together	Strong team - has worked successfully together on comparable projects
	Sample projects not related to this requirement	Sample projects generally not related to this requirement	Sample projects generally related to this requirement	Sample projects directly related to this requirement	Leads in sample projects directly related to this requirement
	Extremely poor, insufficient to meet performance requirements	Little capability to meet performance requirements	Acceptable capability, should ensure adequate results	Satisfactory capability, should ensure effective results	Superior capability, should ensure very effective results

To be considered further, proponents **must** achieve a minimum Technical Rating of fifty (50) points out of the hundred (100) points available as specified above. **No further consideration will be given to proponents not achieving the pass mark of fifty (50) points.**

SRE 4 PRICE OF SERVICES

All price proposal envelopes corresponding to responsive proposals which have achieved the pass mark of fifty (50) points will be opened upon completion of the technical evaluation. An average price is determined by adding all the price proposals together and dividing the total by the number of price proposals being opened.

All price proposals which are greater than twenty-five percent (25%) above the average price will be set aside and receive no further consideration.

The remaining price proposals are rated as follows:

- A. The lowest price proposal receives a Price Rating of 100
- B. The second, third, fourth and fifth lowest prices receive Price Ratings of 80, 60, 40, and 20 respectively. All other price proposals receive a Price Rating of 0.
- C. On the rare occasions where two (or more) price proposals are identical, the matching price proposals receive the same rating and the corresponding number of following ratings are skipped.

The Price Rating is multiplied by the applicable percentage to establish the Price Score.

SRE 5 TOTAL SCORE

Total Scores will be established in accordance with the following:

Rating	Possible Range	% of Total Score	Score (Points)
Technical Rating	0 - 100	90	0 - 90
Price Rating	0 - 100	10	0 - 10
Total Score		100	0 - 100

The Proponent receiving the highest Total Score is the first entity that the Evaluation Board will recommend for the provision of the required services. In the case of a tie, the proponent submitting the lower price for the services will be selected.

SRE 6 SUBMISSION REQUIREMENTS - CHECKLIST

The following list of documents and forms is provided with the intention of assisting the Proponent in ensuring a complete submission. The Proponent is responsible for meeting all submission requirements.

Please follow detailed instructions in R1410T General Instructions to Proponents, GI16 Submission of Proposal. Proponents may choose to introduce their submissions with a cover letter.

- Team Identification - see typical format in Appendix A
- Declaration/Certifications Form - completed and signed - form provided in Appendix B
- Integrity Provisions - Associated Information - list of directors/owners
- Proposal - one (1) original plus five (5) copies
- Front page of RFP
- Front page(s) of any solicitation amendment

In a separate envelope:

- Price Proposal Form - one (1) completed and submitted in a separate envelope

APPENDIX E - TERMS OF REFERENCE

Refer to the PDF document attached

APPENDIX F - TERMS OF REFERENCE APPENDICES (A. – E.)

Refer to the PDF document attached

APPENDIX G – GENERAL PROCEDURES & STANDARDS

Refer to the PDF document attached

APPENDIX H - ADDITIONAL DOCUMENTS

P1 – ESA

Refer to the PDF document attached



Architectural & Engineering Services

TERMS OF REFERENCE

Expansion and Redevelopment of the North Portal Port of Entry

For:

Canada Border Services Agency
North Portal, Saskatchewan

PWGSC Project R.065684.001
CBSA Project 411210



Table of Contents:

1	PROJECT DESCRIPTION	3
1.1	GENERAL	3
1.2	BACKGROUND INFORMATION	4
1.3	SUMMARY OF DESIGN WORK	7
1.4	OBJECTIVES	10
1.5	SUMMARY OF SERVICES AND QUALIFICATIONS	12
1.6	SCHEDULE	12
1.7	COST	13
1.8	EXISTING DOCUMENTATION	13
1.9	CODES, ACTS, STANDARDS, REGULATIONS	14
2	REQUIRED SERVICES	15
2.1	GENERAL REQUIREMENTS	15
2.2	PROJECT REVIEW AND APPROVAL	15
2.3	CO-ORDINATION WITH OTHER STAKEHOLDERS	16
2.4	PRE-DESIGN SERVICE	16
2.5	SCHEMATIC DESIGN SERVICE	18
2.6	DESIGN DEVELOPMENT SERVICE	20
2.7	DESIGN SERVICES	22
2.8	TENDER SERVICES	25
2.9	CONSTRUCTION SUPPORT SERVICE	26
2.10	RESIDENT SITE REPRESENTATIVE SERVICE	28
2.11	COMMISSIONING SERVICE	30
2.12	POST CONSTRUCTION SERVICE	31
3	PROJECT ADMINISTRATION	33
3.1	GENERAL REQUIREMENTS	33
3.2	MEETINGS	33
3.3	SITE VISITS	34

APPENDICES

- A. NORTH PORTAL PORT OF ENTRY FACILITY EXPANSION, PHASE ONE – OPTIONS ANALYSIS REPORT , prepared by Republic Architecture dated December 2014
- B. CONCEPT SITE PLAN DRAWING, dated March 2015
- C. EMERGENCY FLOOD DAMAGE REDUCTION PROGRAM – PHASE I STUDY, NORTH PORTAL SASKATCHEWAN , dated April 2013 prepared by Stantec Consulting Ltd
- D. PAR-KUT PRE-MANUFACTURED COMMERCIAL PIL BOOTH shop drawings
- E. CBSA DETAILED REQUIREMENTS AND DESIGN STANDARDS



1 PROJECT DESCRIPTION

1.1 GENERAL

1.1.1 PURPOSE

Public Works & Government Services Canada (PWGSC) requires the services of an architectural firm, acting as prime consultant together with a multi-disciplinary team of sub-consultants for the provision of service required for this project.

- .1 The Canada Border Services Agency (CBSA) requires expansion and redevelopment of the existing facilities at the port of entry at North Portal Saskatchewan to accommodate increased volumes of traffic.
- .2 The project involves construction of an addition/renovation to the existing commercial building, expansion of the commercial vehicle parking area, a new staff parking area, a new commercial vehicle lane, new PIL (Primary Inspection Line) booths, a new canopy above the PIL booths, relocation of existing storage sheds, and demolition of existing houses.

1.1.2 THE PWGSC GENERAL PROCEDURES AND STANDARDS DOCUMENT (GP&S)

- .1 The Terms of Reference (TOR) document must be used in conjunction with the GP&S, as the two documents are complimentary.
- .2 The TOR describes project-specific requirements, services and deliverables while the GP&S document outlines with minimum standards and procedures common to all projects.
- .3 In the case of a conflict between the two documents, the requirements of the TOR override the GP&S Document.

1.1.3 PROJECT INFORMATION

Project Information	
Project Title:	Facility Redevelopment and Expansion
Project Address:	CBSA Port of Entry, North Portal, Saskatchewan
Solicitation Number:	
CBSA Team Leader:	Raymond Gregoire
PWGSC Project Number:	R.065684.001
PWGSC Contracting Officer:	TBD
PWGSC Project Manager:	James Hutchings



1.2 BACKGROUND INFORMATION

1.2.1 NEED & GOALS

1. On February 4, 2011, the Prime Minister of Canada and the President of the United States (US) issued *Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness*. This Declaration established a new long-term partnership built upon a perimeter approach to security and economic competitiveness. Collaboratively, Canada and the US developed a joint Beyond the Border Action Plan (Action Plan) to realize this goal which commits to making significant investments in physical infrastructure at key land border crossings to relieve congestion and expedite the movement of traffic across the border. In the Action Plan, Canada and the US, commit to make significant investments in physical infrastructure at key crossings to relieve congestion and expedite the movement of traffic across the border – specifically highlighting the Lacolle, Lansdowne, Emerson and North Portal Ports of Entry (POE). In the Federal budget announced in March, 2013, the government unveiled to the public a five-year plan called “Beyond the Border Action Plan” to improve those border facilities.
2. The North Portal border crossing is the main Canada – United States border crossing in Saskatchewan. The crossing operates 24 hours per day, seven days per week. It is connected to Highway 39 on the Canadian side and Highway 52 on the United States side. The North Portal Port of Entry (POE) is the only major Designated Commercial Operation (DCO) crossing between Emerson, Manitoba and Coutts, Alberta. Its location makes it a key gateway in supporting the natural resource industries in Saskatchewan and Alberta.
3. North Portal is the only Designated Commercial Office at the land border in Canada without a commercial secondary examination warehouse with a off-load inspection capability. This is a significant operational deficiency that impacts CBSA’s capacity to interdict contraband and to process legitimate goods destined to Canadian markets.
4. The Government of Canada has invested \$12M to rehabilitate and upgrade sections of Highway 39 to and from North Portal based on the regional and national importance of this trade corridor. The importance of the corridor to sustaining the development and growth of the natural resource sector in Saskatchewan and eastern Alberta was a major factor in the investment decision.
5. The US Government recently completed a \$40M comprehensive modernization project at the US Port of Entry at Portal, North Dakota. The new US port of entry has four primary inspection lanes.
6. The existing Port of Entry (POE) facilities were constructed in 1987 and have not undergone any expansion/modernization of the facilities in the intervening period. Currently the CBSA has only 2 operational Primary Inspection Lanes (PIL) capable of processing inbound traffic which severely restricts the CBSA’s ability to meet its



service standards resulting in border delays that will only increase in the future given the forecasted growth in trade and travel at this location.

7. The facility is operated by PWGSC. There is a fulltime PWGSC building operator on-site.

1.2.2 USER DEPARTMENT

- .1 The User Department referred to throughout the TOR is the Canada Border Services Agency (CBSA).
- .2 The CBSA Mission
 - .1 CBSA is the federal government agency responsible for providing integrated border services that support national security and public safety priorities and facilitate the free flow of persons and goods, including animals and plants that meet all requirements under the program legislation.
 - .2 The Canada Border Services Agency works to ensure Canada's security and prosperity by managing the access of people and goods to and from Canada.

1.2.3 EXISTING CONDITIONS

- .1 The main characteristics of the site are:
 - .1 Saskatchewan Provincial Highway 39 (2 lane highway).
 - .2 Commercial Examination Building (North side of Highway 39).
 - .3 Travellers Building (located on median of Highway 39).
 - .4 Tertiary Inspection Building.
 - .5 One existing PIL booth, connected to the Travellers Building; 1 existing freestanding bi-level PIL booth.
 - .6 A paved area which includes approx 8 staff parking stalls adjacent to the commercial building, 15 stalls adjacent to the Travellers building for outbound travellers and staff.
 - .7 Existing commercial vehicle parking (8 stalls).
 - .8 Existing seized vehicle compound.
 - .9 Existing wetlands (swamp) on site and on adjacent property (across Bowell Avenue) Existing culvert under Bowell Avenue.
 - .10 The areas around the site are flat and prone to flooding. (see Emergency Flood Damage Reduction Program Phase 1 study-North Portal, Saskatchewan)
 - .11 There is an underground gas line crossing the proposed Commercial building expansion area, The gas line serves both the Commercial Examination Building and Travellers Building.
 - .12 Existing overhead and underground utilities on site, including Telecommunications, High and Low voltage power distribution services including transformers, poles and cables to various buildings and houses.



- .13 Existing underground power, telecommunications distributions between existing buildings.
- .14 Two existing vacant residences, including associated garages and sheds (all to be demolished)

1.2.4 CONSTRAINTS AND CHALLENGES

- .1 Addressing program requirements while maintaining existing CBSA operations is a primary challenge. The existing border crossing operations must be continuously operational on a 24/7 basis. Planning and phasing will be required including provision of temporary services is necessary to ensure the Port is fully operational throughout the term of the project.
- .2 Co-ordination and consultation with NDDOT, Province of Saskatchewan and Town of North Portal on issues including road location, road elevation, scheduling, site drainage etc.
- .3 Site design shall consider management of flood risks. Liase and coordinate with the Province of Saskatchewan and Town of North Portal.
- .4 Existing wetlands on site will require geotechnical investigation in order to find solutions for stabilizing the subgrade to support commercial vehicle parking pavement structure.
- .5 Investigation will be required to determine location and depth of on-site utilities, both above and below grade. Gas lines, telephone lines, hydro lines and an existing sewage holding tank will require relocation.
- .6 Some areas of existing pavement do not have positive drainage. Design shall provide for positive drainage on all pavement surfaces.
- .7 An existing underground natural gas line will have to be relocated to accommodate addition to the existing Commercial Examination Building.
- .8 Various underground power, telephone, telecommunications, security and alarm systems between buildings may need to be relocated and or protected. Consult with SaskPower and SaskTel to determine critical timelines and if any capital contribution is required.
- .9 Consultants to locate all of the existing systems and services including underground distributions and create updated drawings.
- .10 Mitigation measures as required to keep environmental conditions under control during all phases of the work.
- .11 The project scope must be tailored to meet the User Department's budget. Diligent cost estimating and cost control is required.
- .12 Consultant's key personnel must be available to respond to inquiries within 48 hours.
- .13 Consultant's key personnel must be available to respond to emergencies within 4 hours.



.14 All site visits must be arranged through the Departmental Representative.

1.2.5 HAZARDOUS MATERIALS

.1 There are 4 houses and associated garages and sheds to be demolished. A hazardous substance survey was carried out in one of the houses as well as a garage and shed on the same property. It was determined that the house contains asbestos containing materials (vermiculite insulation and vinyl tiles) as well as lead based paint. The three other houses are of similar vintage and construction materials. Construction documents for this project must identify work to remove hazardous materials prior to demolition of the 4 houses and garages/sheds. It is The Hazardous substance survey will be made available to the successful proponent.

1.2.6 PROJECT DELIVERY APPROACH

.1 This project will use a traditional design-bid-build approach.

1.3 SUMMARY OF DESIGN WORK

1.3.1 SITE WORK (REFER TO ATTACHED DWG. C01)

- .1 All roadways, paved areas intended for commercial traffic must accommodate (turning radii, etc.) all commercial vehicles legally permitted in the Province of Saskatchewan.
- .2 All new pavement shall be designed to support a legally loaded B-train, in accordance with standards as set out in Vehicle Weight and Dimension Regulations 2010 (Province of Saskatchewan)
- .3 Widening of the pavement for existing inbound traffic to accommodate 2 commercial lanes, and one car lane including 2 new freestanding bi-level PIL booths.
- .4 Parking for 16 commercial vehicles. Stalls must have drive-through access.
- .5 Parking for 26 staff vehicles
- .6 Provide Additional Visitor Parking.
- .7 Demolish Existing Visitor Parking.
- .8 Relocation of the PWGSC storage shed.
- .9 Demolish existing seized vehicle compound, provide new seized vehicle compound (area to be double area of existing compound).
- .10 Modifications to all existing site elements affected by or related to the work including utility infrastructure, signage, lighting, site drainage, sidewalks, curbs and landscape components.



- .11 Remove hazardous building materials and demolish existing houses and associated garages and sheds including all services. Remove existing underground services and foundations to depth of 2400mm.
- .12 Remove all the overhead high and low voltage distribution services including transformers, poles and cables and create a new complete underground services distribution. Provide all pad mounted HV distribution switchgear, transformers and telecommunications pedestals to utility standards. Provide concrete bollards at pad mounted switchgear, distributions and transformers.
- .13 Upgrade site and building mounted exterior lighting. Relocation of site lighting standards as required to suit new site layout.
- .14 All exterior telephone, communications, power, lighting and systems cables to be buried underground and protected.
- .15 The existing sewage holding tanks are connected to a Town of North Portal Wastewater pump-out structure on site. Upgrade and replace the existing connection to the Town of North Portal wastewater system.
- .16 Any upgrades necessary to existing buried utilities to ensure code-compliance and to support pavement structure and traffic loads

1.3.2 BUILDING AND BUILDING ALTERATION WORK

- .1 A new 480sm (usable) addition to and renovation of the existing Commercial Examination Building. Refer to Republic Architects Study report for program requirements.
- .2 Remove existing attached PIL booth. Replace with new attached bi-level booth. Remove existing freestanding PIL booth. Provide 2 new freestanding bi-level PIL booths.
- .3 Existing canopy does not have sufficient clearance. Provide a new canopy above all PIL booths. Canopy design to mitigate noise.
- .4 PIL booth design to be based on design provided by CBSA, however, the Consultant will be required to make improvements to the design, based on input received from CBSA. Improvements may include:
 - .1 Upgrading insulation value of wall panels.
 - .2 Improving heating and cooling to suit local conditions.
 - .3 Revisions to improve ergonomic operation.
 - .4 Eliminating 'blind spots' ie providing unobstructed visual access from the booth attendant to see inbound vehicles.
- .5 Mechanical:
 - .1 PIL Booths
 - .1 The heating, ventilating, and air-conditioning (HVAC) system for each booth shall be provided by a standalone unit with electric heating.



- .2 The system shall provide space temperatures in accordance with ASHRAE and CBSA requirements.
- .3 Request the traffic flow from the Departmental Representative in order to calculate the air infiltration rate for HVAC system.
- .4 The existing EMCS in the Travellers Building is provided and monitored by Prairie Controls Ltd. from Regina. Contact Prairie Controls to investigate expansion to connect the booths to the existing control system. Provide upgrades as required.
- .2 Commercial Examination Building Addition
 - .1 Do not connect to the HVAC system in the existing building. Heating is provided by two natural gas-fired boilers.
 - .2 Provide a standalone HVAC system with natural gas for heating. Connect to the existing natural service.
 - .3 The system shall provide space temperatures in accordance with ASHRAE and CBSA requirements.
 - .4 Request the traffic flow from the Departmental Representative in order to calculate the air infiltration rate for HVAC system.
 - .5 The existing EMCS in the building is provided and monitored by Prairie Controls Ltd. from Regina. Contact Prairie Controls to investigate expansion to connect the new HVAC system to the existing control system. Provide upgrades as required.Connect to the existing waste, vent, and domestic water piping for the new washroom.
- .6 Electrical
 - .1 Main Distribution and Service.
 - .1 Examine and verify existing main distribution and service capacities (connected and demand) for each building and upgrade with new if required. Allow sufficient spare capacity (15% min.) for future growth.
 - .2 New underground secondary power services to each building from new underground high voltage pad mounted switchgear distribution.
 - .2 Emergency Power
 - .1 Assess existing generator system (including transfer switch) in commercial building for capacity (allowing minimum 15% spare capacity) , code compliance and serviceability, taking into consideration a 25 year service life. Consultant fee proposal to be based on replacement of existing generator in commercial building with new generator system.
 - .2 Evaluate and separate all the life safety and non life safety loads including transfer switches, distributions and panels to code requirements for all the new and existing buildings.



- .3 Provide separate options and costs for life safety and non life safety systems.
- .3 Fire Alarm System
 - Provide new fire alarm system in the existing Commercial building and new addition.
- .4 Electrical and Telecom Rooms
 - .1 Examine existing spaces and provide new electrical and Telecommunication rooms to accommodate existing and new equipment. Do not locate panels and cabinets in corridors and or similar spaces. Ensure adequate ventilation and temperature control is provided where necessary. Maintain a minimum of 1,000 mm front clearance for each equipment or cabinet.

1.3.3 DETAILED REQUIREMENTS AND DESIGN CRITERIA

- .1 Incorporate detailed requirements and design criteria appended to this T.O.R.

1.4 OBJECTIVES

1.4.1 GENERAL GOALS

- .1 Include the following provisions;
 - .1 Match design and materials of existing facility.
- .2 Provide construction phasing, including temporary facilities, temporary access routes, barricades, and hoarding as required to ensure that the CBSA operations are not adversely affected during the construction stage.
 - .1 Identify site preparation requirements, including safety isolation of the construction site as required, as well as required contractor lay down areas;
- .3 Ensure the design is efficient and cost effective considering both initial cost and operation & maintenance costs over a life cycle of 50 years

1.4.2 DESIGN PERFORMANCE

- .1 Provide a site development plan and facility that:
 - .1 Responds to the operational and functional needs of CBSA.
 - .2 Meets or exceeds the requirements of the National Building Code.
 - .3 Will endure and remain serviceable for its unique purpose by:
 - .1 Incorporating suitable high quality materials into the design that are of a quality, durable and are constructed with the good industry practice;
 - .2 Employing advanced systems and technologies to support contemporary operating requirements with capacity for growth and change;
 - .3 Fully integrating all components and systems, including architectural, Civil, structural, mechanical, electrical, IT, multimedia, and security design;



.2 The building must:

- .1 Provide a healthy and safe working environment that meets or exceeds all codes for fire, health, and life safety, including the Canada Labour Code, that fully supports optimum work productivity. Fully integrate and optimize the performance of components and systems;
- .2 Embody contemporary sustainable design and application principles and is implemented in an environmentally responsible manner;
- .3 Be designed for ease of maintenance, with systems that can be accessed and easily repaired or replaced during the building's life cycle;
- .4 Provide physical security for occupants;
- .5 Provide integration with CBSA systems for security and information IT/MM services.

1.4.3 HERITAGE : N/A

1.4.4 ENVIRONMENTAL/SUSTAINABLE DEVELOPMENT

- .1 CBSA is committed to sustainable development and has developed a sustainable development strategy (SDS).
 - .1 <http://www.cbsa-asfc.gc.ca/agency-agence/reports-rapports/sds-sdd/sds-sdd-14-17-eng.html>
- .2 Review the CBSA SDS and identify opportunities to incorporate sustainable design. Opportunities and requirements include:
 - .1 Upgrades to building insulation values to minimize HVAC requirements and CO2 emissions
 - .2 Rainwater harvesting
 - .3 Management of storm water run-off
 - .4 Indigenous plants
 - .5 CBSA prohibits the use of ozone depleting chemicals in refrigerants, cooling systems, insulating foams and fire control equipment;
 - .6 Water consumption must be minimized using water saving devices and appliances;
 - .7 Environmental impact of materials should be considered throughout both product and facility life cycles, including source and eventual disposal
 - .8 Management of construction and demolition waste

1.4.5 PROJECT DELIVERY

- .1 The design must be tailored to the project budget.
- .2 Services shall be delivered as per key milestones indicated in the project schedule.
- .3 Ensure that each Consultant team member understands the project requirements, for seamless delivery of the required services.
- .4 Ensure co-ordination of services with other consultants hired by PWGSC.



- .5 Provide a quality management plan that includes rigorous quality reviews.
- .6 Provide a continuous risk management program; address the risks associated specifically with this project.

1.5 SUMMARY OF SERVICES AND QUALIFICATIONS

1.5.1 GENERAL SERVICES

- .1 The prime consultant will provide a consulting team that must include the following:
 - .1 Architect
 - .2 Civil Engineer
 - .3 Structural Engineer
 - .4 Mechanical Engineer
 - .5 Electrical Engineer (with expertise in security systems)
 - .6 Transportation Engineering Specialist
 - .7 Cost Estimator
- .2 The Consultant team must be capable of providing the following services:

Architectural Services	Civil Engineering
Transportation Engineering	Structural Engineering
Mechanical Engineering	Electrical Engineering
Commissioning	Project Scheduling
Cost Estimating	Risk Management
Sustainable Design	Hazardous Waste Management
- .3 Include 75 hours of full time resident site supervision to provide field review services during paving work.

1.6 SCHEDULE

1.6.1 GENERAL

- .1 Deliver the project to be ready for occupancy in accordance with the project milestone dates below.
- .2 Prepare a Project Schedule, in accordance with the milestone list.



1.6.2 ANTICIPATED MILESTONE DATES

Project Phase	Milestone Completion Date
Consultant Contract Award	Nov. 30, 2015
Construction Documents completion	June 30, 2016
Tender and Construction Contract Award	Sept 30, 2016
Complete Commissioning	Aug 30 2017
Substantial Completion/Owner move-in	Sept 30, 2017
Warranty Phase completion	Sept 30, 2018

1.7 COST

1.7.1 CONSTRUCTION BUDGET

- 1 The construction budget for this project is \$8,164,000 and does not include Project Management fees, administration costs, Consultant fees, Risk Allowance, Escalation or GST and is in 'Budget-Year (Current)' dollars.

1.8 EXISTING DOCUMENTATION

1.8.1 DRAWINGS AVAILABLE FOR THE CONSULTANT

- 1 There are no 'As-built' drawings for the existing facility. However, the original tender drawings (in hard copy) are available. The Consultant will be responsible for verifying the accuracy of the information provided. There are no AutoCad drawings of the existing facility.
- 2 Topographic Survey (in AutoCad format) prepared by Altus Group, dated July 2014. Note: This survey was prepared in conjunction with the Report prepared Republic Architecture Inc.
- 3 Commercial building – New border crossing Facility for Kingsgate BC (elevation and plans drawings for reference).
Commercial building – New border crossing Facility for Prescott Ontario (elevation and plans drawings for reference).

1.8.2 REPORTS AVAILABLE FOR THE CONSULTANT

- 1 Security Design of CBSA Facilities, dated 24 Jan 2012
- 2 Building and Infrastructure Assessment, Environmental Site Assessment and Feasibility Study, prepared by Trow Engineering dated February 2002.
- 3 Hazardous Building Materials Report for North Portal Residential Housing Unit, prepared by PWGSC Environmental Services dated June 2015.

1.8.3 DISCLAIMER

- 1 Reference information will be available in the language in which it is written.



- .2 The documentation may be unreliable and is offered, “as is” for the information of the Consultant.

1.9 CODES, ACTS, STANDARDS, REGULATIONS

1.9.1 GENERAL

- .1 A listing of Codes, Acts, Standards and Guidelines potentially applicable to this project are contained in the GP&S Document.
- .2 The Authorities Having Jurisdiction (AHJ) on this project are:
 - .1 The local AHJs;
 - .2 Treasury Board of Canada.
- .3 The Consultant must identify, analyze and design the project in accordance with the requirements of all AHJs and all applicable Codes, Acts, Standards and Guidelines and Legislation.
 - .1 The applicability of various Codes, Acts, Standards and Guidelines listed in the GP&S document arise out of direct and indirect references in documents which apply to Federal buildings, such as the Canada Labour Code.
 - .2 The consultant team must be fully versed with the legislation and requirements that are unique to Federal Government buildings in Canada.
 - .3 The consultant team must be fully versed with the legislation and requirements that are unique to Federal Government projects tendered through Public Works & Government Services Canada.
- .4 All applicable environmental regulations, including but not limited to:
 - .1 Halocarbons-containing equipment: Decommissioning, design and installation of halocarbon-containing systems must be completed in accordance with the Federal Halocarbons Regulations, 2003 under the Canadian Environmental Protection Act 1999. CBSA requires an inventory of all halocarbons containing equipment decommissioned and installed.
- .5 Petroleum product storage tanks: Decommissioning, design and installation of petroleum product storage tank systems must be completed in accordance with the [*Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*](#) under the *Canadian Environmental Protection Act 1999*. CBSA requires an inventory of all petroleum product storage tanks decommissioned and installed, including specifications and as-built designs.
- .6 City of Regina Standards for municipal infrastructure details.



2 REQUIRED SERVICES

2.1 GENERAL REQUIREMENTS

2.1.1 SERVICES

- .1 Schematic Design Service
- .2 Design Development Service
- .3 Design Service; to provide construction documents for review at 50%, 99%, 100% completion stages
- .4 Tender Services – to assist the Departmental Representative
- .5 Construction Support Service
- .6 Post Construction Service

2.2 PROJECT REVIEW AND APPROVAL

2.2.1 GENERAL

- .1 Comply with all applicable laws and regulatory requirements as required by the General Conditions of the Contract.

2.2.2 FEDERAL GOVERNMENT

- .1 The federal authorities having jurisdiction over this project are:
 - .1 CBSA for functional design, fire protection, IT and security systems;
 - .2 Environment Canada for environmental regulations;
 - .3 PWGSC
Treasury Board of Canada

2.2.3 PWGSC REVIEWS, APPROVALS AND PRESENTATIONS

- .1 Senior Management Approval
 - .1 The project is subject to approval by senior managers of CBSA and PWGSC. These authorities are responsible for final decisions on the project.
 - .2 These authorities may require an oral presentation at the schematic design phase.
- .2 Project delivery team approval
 - .1 This includes both the PWGSC Professional & Technical Team reviews and User approval.
 - .1 The purpose of this review is technical quality assurance.
 - .2 All submissions will be reviewed.
 - .3 Expected turnaround time is 10 days.
 - .4 For each review, provide three copies of deliverables.



2.2.4 MUNICIPAL AUTHORITIES

- .1 The federal government generally defers to municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.
- .2 Municipal authority review
 - .1 The purpose of this review is information and awareness;
 - .2 Submit construction documents as required to obtain municipal approval.
- .3 The Town of North Portal will review proposed development for impact on Town infrastructure and conduct reviews required for issuance of building permit.

2.3 CO-ORDINATION WITH OTHER STAKEHOLDERS

- .1 The USA (Government Services Agency, GSA North Dakota Transportation Agency and the US Customs and Border Protection Agency) may be impacted by proposed revisions to the Port of Entry.
- .2 The Govt of Saskatchewan will review proposed development which will impact traffic flows on Provincial Highway #39.
- .3 During the design phase, the Consultant shall participate in co-ordination meetings with other stakeholders.

2.4 PRE-DESIGN SERVICE

2.4.1 GENERAL

- .1 The Consultant Team will review and analyze all available project information, consult with the Departmental Representative, and deliver a comprehensive Pre-Design Report.

2.4.2 SCOPE AND ACTIVITIES

- .1 The Consultant shall:
 - .1 Visit the project site, analyze site conditions, confirm existing conditions, update existing drawings as required, and identify any conditions not identified in this TOR that will impact project delivery & design and report the results to the Departmental Representative;
 - .2 Meet with CBSA representatives to discuss and identify all functional requirements
 - .3 Review:
 - .1 All existing reports, documents and material related to the project, including the functional program and the requirements identified in the TOR,
 - .2 Potential for environmental impacts and application of the Canadian Environmental Assessment (CEA) Act,
 - .3 Information available on existing facilities, including:
 - .1 Construction documents of existing structures



- .2 Topographic surveys
 - .3 Building shell, including superstructure, exterior enclosure, roofing, etc.
 - .4 Interiors, including interior construction, stairs, interior finishes, etc.
 - .5 Services, including plumbing, HVAC, fire protection, electrical, telecommunications, building automation, etc.
 - .6 Equipment and furnishings;
 - .7 Special construction and demolition, including hazardous materials abatement etc.
- .4 Analyse:
- .1 All the program information and project requirements to identify any conflicts, gaps, or potential additional work and indicate the impact on project scope, schedule and costs
 - .2 Capacity and condition of all site utilities to support the new requirements
 - .3 All existing information relating to this project and compare with site conditions, including existing grades and required flood protection;
 - .4 Sustainable design opportunities, strategies, budgets (i.e. energy, water, waste, etc.)
 - .5 Base building requirements for Information Services, Multi-media, Security and requirements to confirm design standards;
 - .6 Existing Illumination lighting levels, pole standard locations, luminaires types.
- .5 Identify:
- .1 Verify the existing information and determine the required additional topographic survey. Determine all additional information that will be required to deliver the project including
 - .1 Geotechnical investigation
 - .2 Topographic survey information;Geotechnical and survey information will be required. Arrange for geotechnical investigation and survey. Costs will be paid by the Departmental Representative as a disbursement.
 - .2 All authorities having jurisdiction (AHJ) over the project and applicable codes, regulations and standards that apply; and
 - .3 Any conflicts that will need to be addressed with respect to scope, quality, schedule, cost. Validate and update the details of CBSA functional requirements;
 - .4 Any upgrades required to existing site services that are required to support new requirements.



- .5 Any adjustments required to the budget, risk analysis and schedule, including allowances for reviews and approvals for each stage of the project life cycle
- .6 Examine and verify existing electrical loads (connected and demand) and determine new requirements
- .7 Consult with utility companies (power and telecommunications) to determine the new high voltage and secondary voltages services and distributions requirements and timelines. Design to include for the removal of the existing overhead lines and poles, underground reconnection to all of the existing remaining buildings and houses with distribution allowances for future expansion.
- .8 The existing facility has sewage holding tanks which are connected to the Town of North Portal Wastewater pump-out structure on site. Assess the condition and capacity of existing infrastructure.
- .9 In consultation with CBSA, determine design load based on 25 year service life.

Identify upgrades required for the connection to the Town's wastewater system. Provide order of magnitude costs associated with anticipated waste water infrastructure works.

2.4.3 DELIVERABLES

- .1 The Consultant shall:
 - .1 Prepare and submit a Pre-Design Report (all disciplines), for review and acceptance by the Departmental Representative and revise as required.
 - .1 Refer to the GP&S Document for contents and report content.
 - .2 Confirm capacity of all existing infrastructure to support proposed development.
 - .2 Topographic Survey Report.
 - .3 Geotechnical Investigation Report, including recommended pavement structure.
 - .4 Provide the class D estimate, which will become the Construction Cost Plan. Include projected escalation costs to the completion of the project
 - .5 Provide an updated project schedule

2.5 SCHEMATIC DESIGN SERVICE

2.5.1 GENERAL

- .1 The Consultant Team will review and analyze all available project information, consult with the Departmental Representative, and deliver a comprehensive Schematic Design Report.



2.5.2 DELIVERABLES

- .1 The Consultant shall:
 - .1 Prepare and submit a Schematic Design Report, for review and acceptance by the Departmental Representative and revise as required.
 - .1 Refer to the GP&S Document for contents and report content.
 - .2 Schematic Site Development Options:
 - .1 Prepare up to 2 sub-options based on
 - .1 Concept Site Plan appended to this TOR, and information provided in NORTH PORTAL PORT OF ENTRY FACILITY EXPANSION, PHASE ONE – OPTIONS ANALYSIS REPORT, dated December 2014, prepared by Republic Architecture;
 - .2 Analyse and develop the project goals including cost and schedule.
 - .3 Analyse and confirm the project requirements with Departmental Representative (DR). Confirm Design Vehicle and any amendments.
 - .4 Use AutoTurn or equivalent software and confirm that Design vehicle will be able to travel within the parking pavement with sufficient clearance from curbs, parked vehicles, and other permanent features.
 - .5 Develop design in sufficient detail to clearly indicate all key elements in the design, including:
 - .1 Connection to existing and new service utilities.
 - .2 Connection to existing building systems.
 - .3 Existing underground cables and conduits services between buildings within new construction areas.
 - .4 Conformance with current NBC. Identify modifications required to the existing building layout and systems to conform with NBC.
 - .5 Adequate manoeuvring space and turning radii for commercial vehicles. Provide pedestrian and vehicle flow diagram and validate traffic flows are functional and safe.
 - .6 Identify temporary facilities and temporary vehicle routing and procedures required to maintain operations during construction at all times.
 - .7 Identify proposed contractor laydown area
 - .6 Update the sustainable design strategy;
 - .7 Update the budget, schedule and risk analysis and identify any conflicts that will need to be addressed with respect to scope, quality, schedule, cost,
 - .8 Prepare an Updated Class 'D' Cost Estimate.
 - .9 Out of this process one option (or a hybrid of the options presented) will be selected as the basis to proceed to Design Development. The



Departmental Representative, in consultation with CBSA and other stakeholders shall select the preferred option to be further developed.

Provide an updated project schedule.

2.6 DESIGN DEVELOPMENT SERVICE

2.6.1 GENERAL

- .1 Further develop the option selected for refinement at the completion of Schematic Design.
- .2 Prepare the Design Development documents, which consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirm code compliance and obtain authorization to prepare the construction documents.

2.6.2 SCOPE AND ACTIVITIES

- .1 The Consultant shall:
 - .1 Further develop the selected schematic design option and expand the intent for each design discipline to complete the Design for this project,
 - .1 Develop sub-system options for various disciplines, for example, chiller options for mechanical systems;
 - .2 Present / submit the design for review and approval to committees, review groups and authorities having jurisdiction as required,
 - .3 Prepare a class 'C' cost estimate, update the schedule and the risk analysis and identify any conflicts that will need to be addressed with respect to scope, quality, schedule, cost,
 - .4 Continue to review all applicable statutes, regulations and by-laws in relation to the design of the project and conduct a detailed code analysis;
 - .5 Analyse the constructability of the project and advise on the construction phasing process and duration,
 - .6 Develop outline specifications for all systems and principle components and equipment, including manufacturers literature for principal equipment and system components proposed for use in the project,
 - .7 Update the sustainable design strategy and report on sustainability targets.
 - .8 Provide a waste diversion assessment of the waste materials from the project site in a spreadsheet format.
 - .1 This shall be incorporated into the Construction/Demolition Waste Management and Disposal NMS specifications.
 - .9 Coordinate multi-disciplinary approach to, sustainability, program design, site design, building design and commissioning;
 - .10 Soft power vac digging will be required for each underground electrical and communications system services prior to any site excavation.



2.6.3 DELIVERABLES

- .1 The Consultant shall:
 - .1 Prepare and submit the Design Development Report, for review and acceptance by the Departmental Representative.
 - .1 Refer to the GP&S Document for contents and report content.
 - .2 Provide an outline Specification.
 - .3 A Site Plan with all geometrics, indicating scope of work.
 - .4 Typical pavement cross section, including pavement structure details.
 - .5 Provide a Class "C" cost estimate representing the increased level of design detail now available.
 - .1 Use detailed costs, i.e. measured quantities with minimal allowances or lump sums.
 - .2 Include escalation rates projected through to the implementation of the project.
 - .3 After acceptance, the Class C estimate shall become the updated Construction Cost Plan.
 - .6 Provide a preliminary Commissioning Plan.
 - .7 Schedule
 - .1 Provide updated milestone project schedule including allowances for reviews and approvals for each stage of the project life cycle;
 - .8 Risk Analysis
 - .1 Updated report on any deviations that may affect cost or schedule and recommend corrective measures.
 - .9 Update Project Log
 - .10 Electrical
 - .1 Update exterior telecommunications, power switchgear, and distribution details including all required underground work.
 - .2 Update the electrical design with the selected option. Provide data on the total connected loads, maximum demand, diversity factors, and the sizing of the normal and emergency equipment.
 - .3 Elaborate on proposed emergency power scheme and provide preliminary installation details for any emergency generator installation.
 - .4 Upgrade utility metering if required and provide new digital customer metering with each new main distribution.
 - .5 Provide typical lighting, power and telecommunication system details for all the required spaces.
 - .6 Include lighting design and control schemes for typical lighting arrangements.



- .7 Provide exterior site and buildings mounted lighting schemes and options identifying luminaries.
- .8 Provide riser and block diagrams for each system including fire alarm and all of the existing systems.
- .9 Identify all the security and IT systems conduits requirements. Provide telecommunications, security, CCTV, alarms and other system details (conduit layout with minimum sizes and boxes).

2.7 DESIGN SERVICES

2.7.1 GENERAL

- .1 The objective of this stage is to translate the Preliminary Phase findings into construction drawings and specifications for the purpose of tendering.
- .2 The Consultant must obtain written authorization from the Departmental Representative before proceeding with Construction Documents.
- .3 Prepare up to 2 tender packages; co-ordinate with all disciplines.

2.7.2 SCOPE AND ACTIVITIES

- .1 Create construction documents in accordance with the General P&S Document,
 - .1 Design according to the budget and schedule,
 - .1 Non-compliances will require revisions to the contract documents.
 - .2 Update the cost estimates
 - .1 Provide a cost breakdown by unit rate and/or trade for review of bids and comparison with the successful Contractor's cost breakdown.
 - .3 Update the project schedule
 - .4 Establish a quality control process for the construction and contract administration stage
- .2 The Consultant shall:
 - .1 Participate in review, stakeholder co-ordination and Value Engineering sessions;
 - .2 Update the sustainable design strategy and report on sustainability targets.
 - .3 Prepare preliminary phasing strategy;
 - .4 Finalize Implementation Plan noting all project constraints;
 - .5 Coordinate the work of various disciplines, including scope changes required to remain within budget;
 - .6 In consultation with Departmental Representative, approve construction materials, processes and specifications considering sustainability and commissioning;
 - .7 Apply a process of continuing cost control, with increasing level of detail during production of contract/construction documents;



- .1 At each review, prepare an up-to-date estimate demonstrating compliance with the Construction Cost Plan,
- .2 Non-compliances will require revisions to the contract documents,
- .8 Prepare a Class A cost estimate at the pre-tender phase, using 100% measured quantities;
 - .1 Provide a cost breakdown by trade for review of bids and comparison with the successful Contractor's cost breakdown.
- .9 Provide written response to PWGSC comments at 50%, 99% and 100% completion review stages and integrate comments into final construction documents;
- .10 Participate in the risk management process;
- .11 Update Project Log tracking approved major decisions;
- .12 Update the schedule;
- .13 Establish quality control process for construction and contract administration phase;
- .14 Provide commissioning specifications, PI/PV forms, training plans and integrated systems testing; include PI/PV forms within applicable sub-sections of the specifications.

2.7.3 DELIVERABLES

- .1 50% complete Construction Documents.
 - .1 Updated Class "B" Estimate
 - .2 An updated project schedule
 - .3 Construction Drawings
 - .1 Drawings should reflect 50% completeness with all Plan, Elevation, Details, and Sections shown.
 - .2 Further refine site plans showing existing and proposed site services. site parking stalls , access roads, and sidewalks, including existing and proposed grades and drainage improvements. Provide final geometrics for new facilities and location of all signage, curbs, side walks, median etc.
 - .3 Provide Typical X-sections and details for all pavement structures(including design slopes), curbs, curb stalls, sidewalks, utilities and related infrastructure., signage including footing, and of any other required structures.
 - .4 Provide typical details of all municipal, structural, foundation, and other infrastructures.
 - .4 Mechanical
 - .1 Provide Plans, Elevations, Details and Sections to indicate that the systems are fully developed.



- .2 Provide schematics of all systems.
- .5 Electrical
 - .1 Provide updated drawings and specifications and all related Details including equipment elevations and Sections to indicate that the systems are fully developed.
 - .2 Provide schematics and details of all systems.
 - .3 Provide short circuit, co-ordination and arc flash study and analysis.
- .6 . Specifications
 - .1 Index to specifications
 - .2 99% including draft Commissioning Sections.
- .2 Final Construction Documents, fully coordinated as if ready for tender
 - .1 This submission incorporates all revisions required by the review of the previous submission. Provide written response to PWGSC comments of previous submittal
 - .2 The Consultant shall submit documents to the PWGSC Departmental Representative.
 - .3 The submittal shall include:
 - .1 A Class "A" Estimate
 - .2 An updated project schedule
 - .3 Construction Drawings
 - .1 Drawings shall be 99%complete without any unfinished details.
 - .2 Further refine site plans and typical cross sections and details.
 - .3 Provide design profiles and cross sections at sufficient interval (not more than 10m apart) for all pavement areas, indicating existing ground grade and proposed design grade , and design slopes.
 - .4 Provide design profiles of all utility lines indicating existing ground grade and proposed design grade, catch basins, manholes , and design slopes.
 - .4 Mechanical
 - .1 Completed Plans, Elevations, Details and Sections of all systems.
 - .2 Completed schematics of all systems
 - .5 Electrical
 - .1 Completed Plans, Elevations and Details of all lighting, power and systems including specification sections.
 - .2 Completed single line and schematics of all systems. Indicate the required minimum breakers interrupting capacity for each distribution and panel..
 - .3 Completed and detailed connected and demand loads summary for each building distribution.
 - .6 Complete Specifications.



- .1 Specifications should be complete with all sections and thoroughly coordinated with the Drawings.
- .3 Final (100%) Construction Documents ready for tendering.
 - .1 This submission incorporates all revisions required by the review of the previous submission.
 - .2 The Consultant shall submit documents to the Departmental Representative, local municipality, or any other Authority having jurisdiction.
 - .3 The submittal shall include:
 - .1 Signed and sealed documents.
 - .2 An updated Class 'A' cost estimate.
 - .3 An updated project schedule
 - .4 Construction Drawings & Specifications
 - .1 As per the P&S Document.
 - .2 Ensure to use word Departmental representative instead of Engineer or Consultant in specification sections.
 - .3 Under Quality control specification section, specify that all of the material testing required is quality control testing. All quality control testing to be conducted and paid by Contractor.
 - .5 Response to PWGSC written comments of previous submittal
 - .6 Advise the Departmental Representative of all issues raised by other officials and all Consultants' responses.
 - .4 The Consultant must confirm in writing that:
 - .1 The documents are ready to be issued for tender;
 - .2 The checklist in the GP&S Document has been reviewed in concert with the requirements of the Consultant Agreement; and
 - .3 A full review and coordination of the Contract Documents are complete and in accordance with professional standard of care.

2.8 TENDER SERVICES

2.8.1 GENERAL

- .1 The object of this phase is to support the Departmental Representative with the tender.
- .2 The Contract Authority for this project is the Real Property Contracting branch (RPC) of PWGSC.

2.8.2 SCOPE AND ACTIVITIES

- .1 When requested, the Consultant will be required to;
 - .1 Provide the Departmental Representative with information required by bidders to interpret construction documents.



- .2 Prepare addenda, in response to all questions within two (2) business days during the bidding period and submit to Departmental Representative,
 - .3 Attend pre-tender site visits,
 - .4 During Bid Review and Analysis, assist the Departmental Representative, as required, by analyzing and reconciling any differences between pre-tender estimates and submitted bids.
- Review detailed cost breakdown submitted by low bidder. Assist Departmental Representative in achieving cost savings if required.

2.9 CONSTRUCTION SUPPORT SERVICE

2.9.1 GENERAL

- .1 The object of this phase is to support the Departmental Representative with the construction phase and ensure the quality, budget and schedule of the project.

2.9.2 SCOPE AND ACTIVITIES

- .1 The Consultant shall:
 - .1 Share all project information with PWGSC.
 - .1 All material specifications, mixes and test results shall be turned over to the Departmental Representative for future maintenance by PWGSC and others
 - .2 This service is required for each construction package developed.
- .2 For General Services:
 - .1 Provide 1 hard copy and 1 electronic copy of reviewed shop drawings.
 - .2 Prepare record drawings and specifications based on Contractor's as-builts;
 - .3 Update Project Log tracking approved major decisions, including those impacting project scope, budget and schedule,
 - .4 Prepare and issue a communications protocol and a shop drawing review protocol in consultation with the Departmental Representative
 - .5 Update sustainability documentation to reflect changes during construction,
- .3 For Site Visits:
 - .1 Provide bi-weekly field reviews and as required to fulfil the Consultant's professional obligations to monitor the construction activities throughout the construction period and keep *Departmental Representative* informed of work progress,
 - .1 Reject unsatisfactory work,
 - .2 Provide written reports.
- .4 For Construction & contract administration:
 - .1 Provide Time Management Report, based on Contractor's submissions and on-site performance



- .2 Provide additional drawings to clarify, interpret or supplement Construction Documents,
- .3 Interpret contract documents as required,
- .4 Assist the Departmental Representative to prepare Certificate of Substantial Completion and provide sign-off,
- .5 Arrange construction meetings, update Master Schedule, review detailed cost breakdown from the contractor, ensure compliance with labour laws and bylaws, provide construction inspection services, provide clarifications, measure work, provide detail drawings and examine shop drawings, monitor training,
- .6 Review work at regular intervals to determine conformity with the contract documents and keep Departmental Representative informed of work progress,
- .7 Review all Quality Material Testing reports, including HMAC and PCC mix design, and recommend to Departmental Representative for acceptance or rejection.
- .8 Review all topographic survey reports to check built grades against the design grades, and recommend to Departmental Representative for acceptance or rejection
- .9 Review and comment on various documents such as Contractor's Progress Claims and updated schedules,
- .10 Monitor performance of the Contractor,
- .11 Offer timely technical advice time on all disputes and claims between PWGSC and the Contractor,
- .12 Conduct inspections and reject unsatisfactory work,
- .13 Authorize special tests, inspections and minor works that do not impact project cost and schedule,
- .14 Furnish supplemental instructions to the Contractor with reasonable promptness or in accordance with a schedule for such instructions agreed to by PWGSC and the Contractor,
- .15 Determine the amounts owing to the Contractor based on work progress, and certify payments to the Contractor and
- .16 Provide Post-Construction Evaluation report.
- .5 Permits
 - .1 Assist the Contractor and provide required documentation in order to obtain the building permit.
- .6 For cost services:
 - .1 Assist the Construction team with cost management advice, if requested;
 - .2 Evaluate change orders; claims, work completed and cash flow.



- .3 After issue of contract provide details for evaluating the project's cost performance
- .7 For Scheduling Services:
 - .1 Review contractor's monthly schedule report; report findings and recommendations to the PWGSC for further discussion with the Contractor.
- .8 For Changes to the work:
 - .1 Assist the Departmental Representative to prepare CCN's and COs, to be issued by the Departmental Representative.
- .9 Assist the Departmental Representative to prepare Certificate of Final Completion and provide sign-off.

2.10 RESIDENT SITE REPRESENTATIVE SERVICE

2.10.1 GENERAL

- .1 The purpose of this phase is to have an on-site representative of the Consultant during construction (paving only).

2.10.2 SCOPE AND SERVICES

- .1 Provide resident site representative to provide inspection, coordination and monitoring during the construction work (paving only)
- .2 Maintain daily records of all construction work placed that includes:
 - .1 Weather conditions, particularly unusual weather relative to construction activities in progress,
 - .2 Major material and equipment deliveries,
 - .3 Daily activities and major work done,
 - .4 Start, stop or completion of activities,
 - .5 Presence of inspection and testing firms, tests taken, results,
 - .6 Unusual site conditions experienced,
 - .7 Significant developments, remarks,
 - .8 Special visitors on-site,
 - .9 Authorities given to Contractor to undertake certain or hazardous works,
 - .10 Environmental incidents,
 - .11 Reports, instructions from Appropriate Authorities Response Actions,
 - .12 Stop work requests by PWGSC
- .3 Inspect all phases of the work in progress for compliance with the tender documents.
- .4 Reject unsatisfactory work,
- .5 Verify quantities of materials received
- .6 The Resident Site representatives shall attend all job-site meetings.



- .7 Stop the work, or give orders to protect the safety of the workers or Crown property in Emergencies.
- .8 Provide information regarding job conditions to the Departmental Representative that may impact the project scope, schedule or budget.
- .9 Notify the Departmental Representative of any potential change orders.
- .10 Provide evaluation of Change Orders.
- .11 Prepare CCN's and COs, to be issued by the Departmental Representative.
- .12 Convey the Consultant's instructions regarding the required standards of workmanship to the Contractor
- .13 Communicate formally with the Contractor in writing via memorandum.
- .14 Accompany PWGSC representatives on inspections
- .15 Prepare weekly reports for the Departmental Representative that includes:
 - .1 Progress relative to schedule,
 - .2 Major activities commencing or completed during the week; main activities now in progress,
 - .3 Major deliveries of materials and / or equipment,
 - .4 Difficulties which may cause delays in completion,
 - .5 Materials and labour needed immediately,
 - .6 Cost estimates of work completed and materials delivered (cost plus contracts),
 - .7 Outstanding information or action required by Consultant or PWGSC,
 - .8 Work force,
 - .9 Weather,
 - .10 Remarks,
 - .11 Accidents on-site,
 - .12 Life safety or building hazards caused by the work, the or his agents.
- .16 Maintain Site Records that include:
 - .1 Contract and Tender Documents updated with all changes.
 - .2 Approved Shop Drawings,
 - .3 Approved Samples,
 - .4 Site Instructions,
 - .5 Contemplated Change Orders,
 - .6 Change Orders,
 - .7 Memoranda,
 - .8 Test and Deficiency Reports,
 - .9 Updated Progress schedule
 - .10 Correspondence and Minutes of Meeting,



- .11 Names, addresses, telephone numbers of PWGSC representatives, Consultant, Contractors, and sub-trades key personnel associated with the contract, including home telephone numbers in case of emergencies.
- .17 Follow approved protocol for the security and protection of documents and information held on-site.
- .18 Review the accuracy of as-built marked up drawings kept by the Contractor and report any discrepancies or deficiencies to the Consultant.
- .19 Report if materials and equipment are being incorporated into the project prior to approval of relative shop drawings or samples.
- .20 Assist in the preparation of all deficiency, interim, preliminary, and final reports in collaboration with PWGSC and Consultant representatives.
- .21 Examine all site conditions and methods to be used by the Contractor undertaking hazardous operations
- .22 Inspect the areas where hazardous work is under way to ensure that the Contractor is maintaining the agreed safety standards
- .23 The Resident Site representatives shall not:
 - .1 Authorize deviations from the contract documents,
 - .2 Approve shop drawings or samples,
 - .3 Provide Advice in any matter without obtaining guidance from Departmental Representative.
 - .4 Accept any work or portions of,
 - .5 Enter into the area of responsibility of the Contractor's Field Superintendent,
 - .6 Stop the work unless convinced that an emergency exists as noted above.

2.10.3 DELIVERABLES

- .1 Weekly written reports
- .2 Memorandum issued to the Contractor.
- .3 Other reports such as material quality testing and topographic surveys as may be requested by the Departmental Representative.
- .4 A copy of the Site Representatives Daily log

2.11 COMMISSIONING SERVICE

2.11.1 GENERAL

- .1 The purpose of the Commissioning Service is to ensure that a fully functioning project is delivered to the Client.

2.11.2 SCOPE AND SERVICES

- .1 Integrated and comprehensive commissioning for the project in accordance with the requirements in the GP&S document and CAN/CSA Z320-11 Building Commissioning.



- .2 The project will be accepted and the Certificate of Substantial Completion will be issued only after:
 - .1 Successful completion of integrated systems tests, life safety support systems tests and after meeting all requirements of the authority having jurisdiction
 - .2 All test certificates, commissioning reports and commissioning documentation have been approved by the Departmental Representative.
 - .3 All Material Quality control testing test results have met the material specification and have been accepted by DR
 - .4 All built grades have met the design grades and have been accepted by DR
- .3 During the Design Phase:
 - .1 Develop the commissioning plan;
 - .2 Include all project-specific commissioning activities
 - .3 Specify commissioning requirements
 - .4 Include project specific component verification (CV) and Performance verification (PVT) sheets.
- .4 During the Construction Phase:
 - .1 Monitor and report on contract commissioning activities,
 - .2 Review and certify verification sheets as they are completed by the contractor,
 - .3 Review commissioning schedule
 - .4 Witness all component, system and integrated systems tests,
 - .5 Review and comment on commissioning test results,
 - .6 Provide advice and recommendations for fine tuning,
 - .7 Finalize the Design Intent Report and Client / Users O&M Manual to reflect as-commissioned operation and maintenance of each system,

2.11.3 DELIVERABLES

- .1 Commissioning Plan,
- .2 Commissioning Specifications in Div 01,
- .3 Project specific CV Sheets to be executed by the Contractor,
- .4 Project specific PVT Sheets to be executed by the Contractor,
- .5 Reviewed and Accepted Commissioning (Evaluation) Report.

2.12 POST CONSTRUCTION SERVICE

2.12.1 GENERAL

- .1 The purpose of this phase is to support the Departmental Representative in obtaining all final documents required for project close out.

2.12.2 SCOPE AND ACTIVITIES

- .1 Project Close-out Services



- .1 Revise documentation to reflect all changes, revisions and adjustments after completion of commissioning
- .2 Prepare record drawings and specifications based on Contractor's as-builts;
- .3 Prepare and submit Final Certificate of Completion and final records.
- .4 Review the Operations and Maintenance Manual. Including:
 - .1 All material quality control test reports, including HMAC mix design.
 - .2 Topographic built grade reports.
- .5 Review the integrated Commissioning Manual.
- .6 Participate in Lessons Learned workshops if requested
- .2 Warranty Services
 - .1 Monitor and certify rectification of deficiencies before expiry of warranties
 - .2 Monitor environmental and life safety system checks to be carried out by Contractor/O&M staff before expiration of warranties
 - .3 Sign off on the Final Completion of the construction contract,
 - .4 Participate in warranty inspections with *Departmental Representative* and Contractor
 - .5 Provide warranty deficiency list,
 - .6 Provide Final Warranty Review report.

2.12.3 DELIVERABLES

- .1 Warranty Deficiency List
- .2 Final Certificate
- .3 As-Built and Record Drawings and As-Built Specifications.
- .4 Comments to O&M Manual
- .5 Signed final Commissioning Manual
- .6 Sign-off on Warranty



3 PROJECT ADMINISTRATION

3.1 GENERAL REQUIREMENTS

3.1.1 PWGSC PROCEDURES AND STANDARDS

- .1 In addition to adhering to the general project administration requirements contained in section 2 of the GP&S document, the Consultant shall comply with the project specific requirements in this section.

3.1.2 LANGUAGE

- .1 No variation

3.1.3 MEDIA

- .1 No variation

3.1.4 PROJECT MANAGEMENT

- .1 No variation

3.1.5 LINES OF COMMUNICATION

- .1 No variation

3.1.6 CONSULTANT RESPONSIBILITIES

- .1 No variation

3.1.7 PWGSC RESPONSIBILITIES

- .1 No variation

3.1.8 USER DEPARTMENT RESPONSIBILITIES

- .1 No variation

3.1.9 REVIEW AND APPROVAL BY PROVINCIAL AND MUNICIPAL AUTHORITIES

- .1 No variation

3.1.10 BUILDING PERMITS AND OCCUPANCY PERMITS

- .1 No variation

3.1.11 TECHNICAL AND FUNCTIONAL REVIEWS

- .1 No variation

3.2 MEETINGS

- .1 General
 - .1 Except as indicated below, endeavour to hold all meetings as Green Meetings (i.e. teleconferences, video conferences, Electronic copies of documents where possible or double-sided hard copies, etc.)
 - .2 The Consultant must ensure that all key personnel are personally available to attend meetings as required and respond to inquiries promptly.
- .2 Pre-Design Meetings:



- .1 Meetings during the Pre-Design Phase will be as follows:
 - .1 Bi-weekly teleconferences;
 - .2 A one day meeting in Regina (to be scheduled shortly after contract award);
- .3 Design Meetings:
 - .1 Meetings during the Design Phase will be as follows:
 - .1 Bi-weekly teleconferences;
 - .2 A one day meeting (design workshop) in Regina;
 - .3 The Consultant shall participate in up to 4 co-ordination meetings with other stakeholders.
- .4 Construction Meetings:
 - .1 Meetings during the Construction Phase will be arranged monthly through the duration of the project. Meetings will be as follows:
 - .1 Bi-weekly teleconferences;
- .5 The Consultant will be responsible for:
 - .1 Preparing minutes of meetings,
 - .2 Forwarding minutes to the Departmental Representative,
 - .3 These meetings are for the accurate exchange of information,
 - .4 All requests and decisions taken must follow the formal lines of communications.
- .6 If additional meetings involving travel are required, they will be reimbursable for time and travel disbursements; however, any additional trips must be approved in advance by PWGSC. Disbursements will be reimbursed at cost without markup.

3.3 SITE VISITS

- .1 Fees shall include all accommodation and travel costs related to site visits to fulfill professional obligations, including verification of existing conditions, attendance at a mandatory site visit for bidders, field review services (including reviews at substantial and final inspection), commissioning services, and resident site representative services outlined in this TOR.



1 DETAILED REQUIREMENTS AND DESIGN STANDARDS

1.1 SITEWORK

1.1.1 PAVEMENT STRUCTURE DESIGN

- .1 Design Life: Minimum of 25 years with no rutting of the surface.
- .2 Consult with Provincial, Federal, and State authorities and identify maximum Design Vehicle axial and gross loading as well as overall dimensions for height, width, and length of design vehicle. Define and verify maximum design loading for vehicle inspection lanes, pavement structures, and parking lots at the pre-design stage in collaboration with CBSA, PWGSC, Provincial Authorities, and other stakeholders identified at that time by the Departmental Representative.
 - .1 As a minimum, the concrete pavement design be 300 (12") of dowelled PCC on 500mm of Base material. Provide Full Frost Protection. If Geotechnical investigation indicates that soil is not frost susceptible, provide pavement structure as per geotechnical investigation and recommendation.
- .3 Roadway adjacent to PIL booths shall be concrete pavement complete with concrete curbs. Design curb dimensions to delineate roadway; to reduce risks to adjacent buildings and people associated with vehicles accidentally accelerating in this area. Design robust and durable curb structures capable of withstanding wear and tear from snowplow operations.
- .4 Portland Cement Concrete Pavement to be provided in areas where typically commercial vehicles are waiting in line up to the PIL lane, where commercial vehicles are parked, and/or waiting to unload/load their cargo at the commercial examination warehouse.
- .5 Portland Cement concrete and Asphaltic Concrete Pavement designs to be prepared by a Registered Professional Engineer for intended use.
- .6 Provide durable, robust, pavement structure, sidewalks, and curb and gutters as recommended by the geotechnical consultant and to minimum standard required by the Provincial Highway Department of Saskatchewan, or a standard identified in a report prepared for this project. In case of a variance between the standards apply the more robust standard.
- .7 The proposed area for commercial vehicle parking (Drawing C01) is low and swamp area. This area is connected to other swamp area across the highway by a CMP. This area will require geotechnical investigation to determine soil type and strength and water table depth. The geotechnical report will include the options to strengthen this area to support design commercial vehicle parking pavement structure. The report to include pavement structure for new pavement areas. Consult with Town of North Portal. Any slopes adjacent to be water to be checked and designed for slope stability.



1.1.2 ROADWAY GEOMETRICS AND DRAINAGE STRUCTURE DESIGN

- .1 Road works shall be designed in accordance with the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, 1999 edition (with all applicable updates issued up to the date of the proposal submission. Verify at the pre-design stage the following design assumptions with Provincial Authorities:
 - .1 Driving lanes to be adequate width to accommodate design vehicle, and one lane to accommodate Cars (3.8m minimum), and paved shoulder widths shall not be any less than what exists now
 - .2 Drainage structures to be designed to handle a 1 in 25 year storm event and frost protection as recommended by the Geotechnical Engineer
 - .3 Use Auto-turn or equivalent software and provide vehicle travel path indicating that design vehicles will move with sufficient clearance from other parked vehicles and permanent infrastructures

1.1.3 STREET AND SITE LIGHTING, SIGNAGE AND PAVEMENT MARKINGS

- .1 Street and site lighting design criteria and construction specifications shall be in accordance with:
 - .1 TAC – Guideline for the Design of Roadway Lighting, latest edition **or to the** CBSA standard whichever is most stringent.
- .2 Signs and Pavement markings shall be designed and constructed in accordance with:
 - .1 Manual of Uniform Traffic Control Devices (MUTCD), latest edition
Saskatchewan Ministry of Infrastructure and Transportation's design standards and specifications.

1.1.4 WASTE WATER SERVICES

- .1 Upgrade connection to Town of North Portal Wastewater system in consultation with Town of North Portal.
- .2 Minimum pipe size will be 300mm. All pipes to be PVC with minimum SDR 35.
- .3 Minimum catch basin size to be 900 and all catch basin and manholes to be reinforced Portland cement concrete.
- .4 Provide catch basins, Manholes, pipes, and other appurtenances to City of Regina standards.
- .5 Minimum slopes for pipes to be 0.5%.
- .6 Minimum velocity of water in pipes to be 0.3m/sec and maximum velocity to be 1.2m/sec.
- .7 Provide minimum 2.0 meter cover for frost protection of all pipes or as recommended by the Geotechnical Engineer.



- .8 Provide horizontal and vertical separation of water pipes, storm water pipes, and waste water pipes to City of Regina standards.
- .9 Provide bedding, side fill, and cover material and thickness for all pipes to City of Regina standards.

1.1.5 EMPLOYEE PARKING LOT

- .1 Assess existing number of employee parking stalls, confirm total number of required staff parking stall with CBSA. Provide barrier free accessible staff parking stalls in conformance with federal accessibility standards.
- .2 All stalls (new and existing) to have new intelligent energy saving power duplex receptacle controllers.
- .3 All stalls to have a well drained paved surface and paved walkway to nearest building.
- .4 Upgrades existing buried utilities as required to ensure code-compliance and to support pavement structure and traffic loads

1.1.6 COMMERCIAL VEHICLE PARKING LOT

- .1 All stalls to have a well drained Portland Cement Concrete paved surface and paved walkway to nearest building.
- .2 Illuminate all exterior space to comply with CBSA security standards. Light standards to be protected from vehicle damage and not to interfere with vehicle movement.
- .3 Upgrades existing buried utilities as required to ensure code-compliance and to support pavement structure and traffic loads

1.1.7 SEIZED VEHICLE COMPOUND

- .1 Confirm requirements for the seized vehicle compound with CBSA including
 - .1 Area requirements
 - .2 Illumination requirements
 - .3 Fence and Security requirements
- .2 Confirm size and layout of seized vehicle stalls for large commercial vehicles at pre-design stage
- .3 Confirm size of commercial vehicle to be parked in compound, and number of designated parking stalls for commercial trucks. To have a well drained surface
- .4 Compound to be illuminated
- .5 Chain link security fence to be 2400mm high, electrically grounded, with a double swing, lockable vehicle gate with overall minimum width of 7.6 m.



1.2 ELECTRICAL

1.2.1 ELECTRICAL AND TELECOM ROOMS

- .1 Ensure equipment rooms and Telecommunication closets are of sufficient size to accommodate the new and existing equipment. Maintain all the required clearances (min.1000mm for power and systems panels including security and communications cabinets).

1.2.2 ELECTRICAL AND TELECOM ROOMS

- .1 Breakers to be adjustable type where required for selective co-ordination. Indicate the minimum required interrupting equipment protection ratings for the maximum available fault currents.
- .2 Provide single phase protection for each three phase motor.



Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

Canada



GENERAL PROCEDURES & STANDARDS

For Professional & Design Services

MMXI Edition

www.pwpsc-tpsgc.gc.ca



Table of Contents:

I	INTRODUCTION	5
1.1	GENERAL PROCEDURES AND STANDARDS	5
1.1.1	<i>General</i>	5
1.1.2	<i>Harmonization with the Terms of Reference (TOR)</i>	5
1.2	PROJECT DELIVERY	5
1.2.1	<i>General Requirements</i>	5
1.2.2	<i>Service Delivery for all Projects</i>	6
1.2.3	<i>Service Delivery (Buildings)</i>	6
1.2.4	<i>Service Delivery (Engineering)</i>	6
1.3	PROCUREMENT OF GOODS AND SERVICES	6
1.3.1	<i>Public Procurement</i>	6
1.3.2	<i>Integrity and Guiding Principles</i>	7
2	REQUIRED SERVICES STANDARDS	8
2.1	GENERAL	8
2.2	COST MANAGEMENT	8
2.2.1	<i>General</i>	8
2.2.2	<i>Treasury Board (TB) Submissions</i>	8
2.2.3	<i>Classes of Estimates</i>	9
2.2.4	<i>Class 'D' (Indicative) Estimate</i>	9
2.2.5	<i>Class 'C' Estimate</i>	9
2.2.6	<i>Class 'B' (Substantive) Estimate</i>	9
2.2.7	<i>Class 'A' (Pre-Tender) Estimate</i>	9
2.3	SCHEDULE MANAGEMENT	10
2.3.1	<i>Scheduler</i>	10
2.3.2	<i>Project Schedule</i>	10
2.3.3	<i>Milestones</i>	10
2.3.4	<i>Activities</i>	10
2.3.5	<i>Schedule Review and Approval</i>	11
2.3.6	<i>Schedule Monitoring and Control</i>	11
2.4	RISK MANAGEMENT	12
2.4.1	<i>Context</i>	12
2.5	WASTE MANAGEMENT	12
2.5.1	<i>Protocol</i>	12
2.5.2	<i>Consultant Responsibilities</i>	12
2.6	TECHNICAL REPORTS	12
2.6.1	<i>Purpose</i>	12
2.6.2	<i>Standards for PWGSC Technical Reports</i>	12
2.6.3	<i>Pre-Design Report Content</i>	13
2.6.4	<i>Schematic Design Report Content</i>	14
2.6.5	<i>Design Development Report Content</i>	16
2.7	CODES, ACTS, STANDARDS, REGULATIONS	19
2.7.1	<i>General</i>	19
2.7.2	<i>PWGSC documents available from PWGSC Project Manager:</i>	19
2.7.3	<i>Codes and Regulations:</i>	19
2.7.4	<i>Standards and Guidelines Produced by the Government of Canada:</i>	20



2.7.5	<i>Health Canada Standards and Guidelines:</i>	20
2.7.6	<i>Standards and Guidelines:</i>	21
2.7.7	<i>Standards and Guidelines for Transportation:</i>	23
2.8	COMMISSIONING PROCESS	23
2.8.1	<i>General</i>	23
2.8.2	<i>Commissioning Plan</i>	24
2.8.3	<i>Component Verification</i>	24
2.8.4	<i>System & Integrated System Testing</i>	24
2.8.5	<i>Test Requirements</i>	25
2.8.6	<i>Commissioning (Evaluation) Report</i>	25
2.8.7	<i>Overview of Roles and Responsibilities</i>	25
2.8.8	<i>Major Tasks and Responsibilities</i>	26
2.9	CONSTRUCTION DOCUMENTS	27
2.9.1	<i>Purpose</i>	27
2.9.2	<i>Principles for PWGSC Contract Documents</i>	27
2.9.3	<i>Quality Assurance</i>	27
2.9.4	<i>Addenda</i>	27
2.9.5	<i>Submissions</i>	28
2.9.6	<i>PWGSC Role</i>	28
2.10	SPECIFICATIONS	28
2.10.1	<i>General</i>	28
2.10.2	<i>National Master Specification (NMS)</i>	28
2.10.3	<i>Specification Organization</i>	28
2.10.4	<i>Terminology</i>	29
2.10.5	<i>Dimensions</i>	29
2.10.6	<i>Standards</i>	29
2.10.7	<i>Specifying Materials</i>	29
2.10.8	<i>Acceptable Products and Materials</i>	29
2.10.9	<i>Alternate Products and Materials</i>	30
2.10.10	<i>Separate and Alternate Prices</i>	30
2.10.11	<i>Sole Sourcing</i>	30
2.10.12	<i>Unit Prices</i>	30
2.10.13	<i>Cash Allowances</i>	30
2.10.14	<i>Warranties</i>	30
2.10.15	<i>Scope of Work</i>	30
2.10.16	<i>Summary and Section Includes</i>	30
2.10.17	<i>Related Sections</i>	30
2.10.18	<i>Index</i>	30
2.10.19	<i>Health and Safety</i>	31
2.10.20	<i>Experience and Qualifications</i>	31
2.10.21	<i>Prequalification</i>	31
2.10.22	<i>Contracting Issues</i>	31
2.11	DRAWINGS	31
2.11.1	<i>General</i>	31
2.11.2	<i>Title Blocks</i>	31
2.11.3	<i>Dimensions</i>	31
2.11.4	<i>Trade Names</i>	31
2.11.5	<i>Specification Notes</i>	32
2.11.6	<i>Terminology</i>	32
2.11.7	<i>Information to be included</i>	32



2.11.8	Drawing Numbers.....	32
2.11.9	Prints	32
2.11.10	Binding	33
2.11.11	Legends.....	33
2.11.12	Schedules	33
2.11.13	North Points.....	33
2.11.14	Drawing Symbols.....	33
3	PROJECT ADMINISTRATION	34
3.1	GENERAL REQUIREMENTS FOR ALL PROJECTS	34
3.2	LANGUAGE	34
3.3	MEDIA	34
3.4	PROJECT MANAGEMENT	34
3.4.1	General.....	34
3.4.2	National Project Management System.....	34
3.4.3	Design Stage.....	34
3.4.4	Implementation Stage	35
3.4.5	Closeout Stage.....	35
3.4.6	Engineering Projects	35
3.5	LINES OF COMMUNICATION.....	36
3.6	MEETINGS	36
3.7	CONSULTANT RESPONSIBILITIES	36
3.8	PWGSC RESPONSIBILITIES	37
3.9	USER DEPARTMENT RESPONSIBILITIES.....	38
3.10	REVIEW AND APPROVAL BY PROVINCIAL AND MUNICIPAL AUTHORITIES	38
3.11	BUILDING PERMITS AND OCCUPANCY PERMITS	38
3.12	TECHNICAL AND FUNCTIONAL REVIEWS	38
APPENDIX A	CHECKLISTS	40
APPENDIX B	SPECIFICATION TOC STANDARDS	49
APPENDIX C	ADDENDUM FORMAT STANDARD	50
APPENDIX D	DIGITAL TENDER DOCUMENTS STANDARDS	51
APPENDIX E	PDF CREATION STANDARDS.....	59
APPENDIX F	DEFINITIONS	62



I INTRODUCTION

I.1 GENERAL PROCEDURES AND STANDARDS

I.1.1 GENERAL

- .1 These PWGSC *General Procedures and Standards* (P&S) have been developed to:
 - .1 Facilitate the development of a rational, well-documented design process; and
 - .2 Ensure compliance with federal government standards, PWGSC Policies and Treasury Board directives.

I.1.2 HARMONIZATION WITH THE TERMS OF REFERENCE (TOR)

- .1 The P&S document must be used in conjunction with the TOR, as the two documents are complimentary.
- .2 The TOR describes project-specific requirements, services and deliverables while the GP&S document outlines with minimum standards and procedures common to all projects.
- .3 In the case of a conflict between the two documents, the requirements of the TOR override this document.

I.2 PROJECT DELIVERY

I.2.1 GENERAL REQUIREMENTS

- .1 The project delivery requirements outlined in this section are applicable to the design and construction of all PWGSC projects in Western Region, unless otherwise indicated in the TOR.
- .2 Under the direction of the Consultant, the Consultant team shall provide fully integrated and coordinated professional and design services for the delivery of a project, in accordance with the requirements in the TOR and as contained herein.
- .3 The Consultant must:
 - .1 Obtain written authorization from the Departmental Representative before proceeding from one phase of work to the next phase of a project;
 - .2 Coordinate all services with the Departmental Representative;
 - .3 Deliver each project utilizing best practices in support of User Department needs, respecting the approved financial budget, schedule, scope, quality energy budget;
 - .4 Establish a cohesive functional partnership and open communication between all members of the project delivery team throughout all phases of the project life;
 - .5 Ensure that the Consultant team has an in-depth understanding and collective 'buy-in' of the project requirements, scope, budget and scheduling objectives, working constructively to build a collaborative and cooperative team approach with knowledgeable and timely input and contribution by all project team members, including representatives from PWGSC and the User Department;
 - .6 Conduct rigorous quality assurance reviews during the design and construction phases, including the application of value engineering principles during the design of all complex systems;
 - .7 Provide a written response to all PWGSC comments included in Quality Assurance reviews conducted throughout the design of the project;
 - .8 If any alterations are required during the development of the design, analyse the impact on all project components and resubmit for approval before proceeding further;
 - .9 Establish and maintain a change control procedure for scope changes;



- .10 Ensure that an experienced Project Architect or Project Engineer is assigned to each project, who shall be responsible for the production, coordination and delivery of all design and construction documents for all project disciplines;
- .11 Prepare a continuous risk identification and management program employing effective methodologies to ensure construction safety as well as claims avoidance;
- .12 Provide continuous and comprehensive documentation of the project at all stages of the project implementation;
- .13 Ensure continuity of key personnel and maintain a dedicated working team for the life of the project;

I.2.2 SERVICE DELIVERY FOR ALL PROJECTS

- .1 For all projects, the Consultant shall:
 - .1 Deliver the project to be within;
 - .1 The established construction budget,
 - .2 The key milestones, according to the established project schedule.
 - .2 Ensure that each Consultant team member:
 - .1 Understands the project requirements, for seamless delivery of the required services;
 - .2 Functions as a cohesive partnership with open communication between all members of the project delivery team throughout all phases of the project life;
 - .3 Function as an integrated and focused team with an in-depth understanding and collective 'buy-in' of the project requirements, scope, budget and scheduling objectives.
- .3 Provide;
 - .1 Full co-ordination of services with other consultants engaged by PWGSC,
 - .2 A continuous risk management program to address the risks associated specifically with this project, including construction safety and claims avoidance issues.
- .4 Deliver the work in a professional manner during all phases of the project, employing best practices for budget, schedule, quality, and scope management;
- .5 Maintain continuity of key personnel and maintain a dedicated working team for the life of the project.

I.2.3 SERVICE DELIVERY (BUILDINGS)

- .1 For Building projects, where an Architectural firm is the Prime Consultants, the Consultant team shall, as a minimum, adhere to the standards of services outlined in the "Canadian Handbook of Practice for Architects - Volume 2 Management" (latest edition) distributed by the Royal Architectural Institute of Canada (RAIC).

I.2.4 SERVICE DELIVERY (ENGINEERING)

- .1 For Engineering projects, where an Engineering firm is the Prime Consultants, the Consultant team shall adhere to the standards of services established by the Professional Engineering Association in the Province or Territories where the project is located.

I.3 PROCUREMENT OF GOODS AND SERVICES

I.3.1 PUBLIC PROCUREMENT

- .1 Public procurement by Canada is legislated and guided by a number of international and national trade agreements, and acts, as well as policies, directives, and guidelines provided by the Treasury Board Secretariat (TBS) and PWGSC.



- .2 There is one over-arching principle for all PWGSC procurement activities: Integrity. Subordinate to this are guiding principles, which provide the framework for PWGSC procurement process.
- .3 For further information refer to the following web link;
 - .1 <http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html>

I.3.2 INTEGRITY AND GUIDING PRINCIPLES

- .1 PWGSC procurement processes will be open, fair and honest.
- .2 Client Service:
 - .1 PWGSC will make every reasonable effort to satisfy the operational requirements of its clients, while obtaining the best value in each procurement process.
- .3 National Objectives:
 - .1 PWGSC procurement activities will advance established government policies, within the limits imposed by international trade obligations.
- .4 Competition:
 - .1 PWGSC procurement will be competitive, with specific exceptions.
- .5 Equal Treatment:
 - .1 PWGSC must ensure that all potential bidders of a particular requirement are subject to the same conditions.
- .6 Accountability:
 - .1 PWGSC is accountable for the integrity of the contracting process.



2 REQUIRED SERVICES STANDARDS

2.1 GENERAL

- .1 Where Services are called for in the project specific TOR, the standards outlined in the following articles apply.

2.2 COST MANAGEMENT

2.2.1 GENERAL

- .1 The following provides a general indication of the information needed by the Consultant's cost estimator to prepare specific classifications of estimates.
- .2 These are the minimum requirements only and should be supplemented where additional information exists or is warranted.
- .3 Construction cost estimates are to be prepared and submitted to PWGSC at various stages during the design process.
- .4 In addition to the Consultants' estimate, PWGSC may have independent estimates performed to compare with the Consultant estimate.

2.2.2 TREASURY BOARD (TB) SUBMISSIONS

- .1 Projects that are subject to TB approval are normally submitted twice.
 - .1 The first submission is for Preliminary Project Approval (PPA) at Pre-Design or Schematic Design stage of a project and must include an Indicative Estimate for the cost of the work.
 - .2 The second submission is for Effective Project Approval (EPA) at the completion of Design Development or Pre-Tender stage of a project and must include a Substantive Estimate for the cost of the work.
- .2 The Treasury Board estimate definitions are:
 - .1 Indicative Estimate;
 - .1 A low quality, order of magnitude estimate that is not sufficiently accurate to warrant TB approval as a Cost Objective.
 - .2 Substantive Estimate;
 - .1 An estimate which is of sufficiently high quality and reliability as to warrant TB approval as a Cost Objective for the project phase under consideration.
 - .2 It is based on detailed systems and component design, taking into account all project objectives and deliverables.
- .3 TB Terminology:
 - .1 Constant dollar estimate;
 - .1 This is an estimate expressed in terms of the dollars of a particular base fiscal year.
 - .1 It includes no provision for inflation.
 - .2 Cash flows over a number of fiscal years may also be expressed in constant dollars of the base year including no allowance for inflation in the calculation of costs.
 - .2 Budget-year (BY) dollar estimate:
 - .1 Budget year dollars is also be referred to as Nominal dollars or Current dollars.
 - .1 This is an estimate based on costs arising in each FY of the project schedule.
 - .2 It is escalated to account for inflation and other economic factors affecting the period covered by the estimate.
 - .2 The costs and benefits across all periods should initially be tabulated in budget year dollars for three following reasons:



- .1 First; this is the form in which financial data are usually available,
- .2 Second; adjustments, such as tax adjustments, are accurately and easily made in budget year dollars,
- .3 Finally; working in budget-year dollar enables the analyst to construct a realistic picture over time, taking into account changes in relative prices.

2.2.3 CLASSES OF ESTIMATES

- .1 PWGSC applies a detailed, four level, classification using the terms Class A, B, C and D.
- .2 Apply these estimate classifications at the project stages as defined in the TOR.
- .3 For projects required to be submitted to TB for approval:
 - .1 An Indicative Estimate shall be at least a class 'D'; and
 - .2 A Substantive Estimate shall be at least a class 'B'.

2.2.4 CLASS 'D' (INDICATIVE) ESTIMATE

- .1 Based upon a comprehensive statement of requirements and an outline of potential solutions, this estimate is to provide an indication of the final project cost, and allow for ranking of all the options being considered.
- .2 Submit Class 'D' cost estimates in elemental analysis format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors, with cost per m² for current industry statistical data for the appropriate building type and location.
- .3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
- .4 The level of accuracy of a class D cost estimate shall be such that no more than a 20% design contingency allowance is required.

2.2.5 CLASS 'C' ESTIMATE

- .1 Based on a comprehensive list of requirements and assumptions, including a full description of the preferred Schematic Design option, construction experience, design experience and market conditions, this estimate must be sufficient for making the correct investment decision.
- .2 Submit Class 'C' cost estimates in elemental analysis format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors, with cost per m² for current industry statistical data for the appropriate building type and location.
- .3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
- .4 The level of accuracy of a class C cost estimate shall be such that no more than a 15% design contingency allowance is required.

2.2.6 CLASS 'B' (SUBSTANTIVE) ESTIMATE

- .1 Based on design development drawings and outline specifications, which include the preliminary design of all major systems and subsystems, as well as the results of all site/installation investigations, this estimate must provide for the establishment of realistic cost objectives and be sufficient to obtain effective project approval.
- .2 Submit Class 'B' cost estimates in both elemental analysis format and trade divisional format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors.
- .3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
- .4 The level of accuracy of a class 'B' cost estimate shall be such that no more than a 10% design contingency allowance is required.

2.2.7 CLASS 'A' (PRE-TENDER) ESTIMATE



- .1 Based on completed construction drawings and specifications prepared prior to calling competitive tenders, this estimate must be sufficient to allow a detailed reconciliation and/or negotiation with any contractor's tender.
- .2 Submit Class 'A' cost estimates in both elemental analysis format and trade divisional format, in accordance with the latest edition issued by the Canadian Institute of Quantity Surveyors.
- .3 Include a summary in the cost estimate, plus full back up, showing items of work, quantities, unit prices, allowances and assumptions.
- .4 The level of accuracy of a class 'A' cost estimate shall be such that no more than a 5% design contingency allowance is required.

2.3 SCHEDULE MANAGEMENT

2.3.1 SCHEDULER

- .1 The Scheduler shall provide a Project Planning and Control Schedule for the project, for the purpose of Planning, Scheduling, Progress Monitoring (Time Management), during all the design phases up to the construction procurement phase.
- .2 A qualified Scheduler, with experience commensurate with the complexity of the project, is required to develop and monitor the project schedule during the design process.
- .3 The Scheduler shall adhere to good industry practices for schedule development and maintenance, as recognized by the Project Management Institute (PMI).
- .4 PWGSC presently utilizes the Primavera Suite software and Microsoft Project for its current Control Systems and any software used by the consultant should be fully integrated with either of these programs, using one of the many commercially available software packages.

2.3.2 PROJECT SCHEDULE

- .1 A Detailed Project Schedule is a schedule developed in reasonable detail to ensure adequate Time Management planning and control of the project.
- .2 Project Schedules are used as a guide for the planning, design and implementation phases of the project, as well as to communicate to the project team when activities are to happen, based on network techniques using Critical Path Method (CPM).
- .3 When building a Project Schedule, the Consultant must consider:
 - .1 The level of detail required for control and reporting;
 - .2 The reporting cycle shall be monthly, unless otherwise identified in the Terms of Reference;
 - .3 What is required for reporting in the Project Teams Communications Plan; and
 - .4 The nomenclature and coding structure for naming of scheduled activities, which must be submitted to the Project Manager for acceptance.

2.3.3 MILESTONES

- .1 The Major Milestones are standard Deliverables and Control Points within NPMS and are required in all schedule development.
- .2 These Milestones will be used in Time Management Reporting within PWGSC as well as used for monitoring project progress using Variance Analysis.
- .3 Milestones may also be external constraints such as the completion of an activity, exterior to the project, affecting the project.

2.3.4 ACTIVITIES

- .1 All activities will need to be developed based on:
 - .1 Project Objectives;
 - .2 Project Scope;



- .3 Milestones;
- .4 Meetings with the project team; and
- .5 The scheduler's full understanding of the project and its processes.
- .2 Subdivide the elements down into smaller more manageable pieces that organize and define the total scope of work in levels that can be scheduled, monitored and controlled.
 - .1 This process will develop the Activity List for the project.
- .3 Each activity will describe the work to be performed using a verb and noun combination (i.e. Review Design Development Report).
- .4 These elements will become activities, interdependently linked in the Project Schedule.

2.3.5 SCHEDULE REVIEW AND APPROVAL

- .1 Once the scheduler has identified and properly coded all the activities to the acceptance of the Project Manager, the activities are then sorted into a logical order and appropriate duration are applied to complete the schedule.
- .2 The scheduler, together with the Project Team, can then analyze the schedule to see if the milestone dates meet the project timelines and then adjust the schedule accordingly by modifying durations or changing logic.
- .3 When the schedule has been satisfactorily prepared, the scheduler can present the detailed schedule back to the Project Team for acceptance and application as the project baseline.
- .4 There may be several iterations before the schedule meets with the Project Teams agreement and the critical project timelines.
- .5 The final agreed version must be copied and saved as the baseline to monitor variances during the design process.

2.3.6 SCHEDULE MONITORING AND CONTROL

- .1 Once Baseline, the schedule can be better monitored, controlled and reports can be produced.
- .2 Monitoring is performed by, comparing the baseline activities completed and milestone dates to the actual and forecast dates to identify the variance and record any potential delays, outstanding issues and concerns and provide options for dealing with any serious planning and scheduling issues.
- .3 There will be several schedules generated from the analysis of the baseline schedule as outlined in the Required Services Sections of the TOR.
- .4 Each updated schedule reflects the progress of each activity to date, any logic changes, both historic and planned, projections of progress and completion indicating the actual start and finish dates of all activities being monitored.
- .5 The Scheduler is to provide continuous monitoring and control, timely identification and early warning of all unforeseen or critical issues that affect or potentially affect the project in accordance with the TOR.
- .6 If unforeseen or critical issues arise, the Scheduler will advise the Project Manager and submit proposed alternative solutions in the form of an Exception Report.
 - .1 An Exception Report will include sufficient description and detail to clearly identify:
 - .1 Scope Change: Identifying the nature, reason and total impact of all identified and potential project scope changes affecting the project;
 - .2 Delays and accelerations: Identifying the nature, the reason and the total impact of all identified and potential duration variations;
 - .3 Options Enabling a Return to the project baseline: Identifying the nature and potential effects of all identified options proposed to return the project within baselined duration.



- .7 At each submission or deliverable stage, provide an updated schedule and exception report.

2.4 RISK MANAGEMENT

2.4.1 CONTEXT

- .1 The Departmental Representative prepares the Risk Management Plan.
- .2 The Departmental Representative may ask for assistance from the Consultant Team for identification of risk items and factors arising from the technical requirements of the project.

2.5 WASTE MANAGEMENT

2.5.1 PROTOCOL

- .1 The Construction, Renovation, and Demolition (CRD) Non-hazardous Solid Waste Management Protocol to which PWGSC is bound, provides direction on the undertaking of non-hazardous solid waste management actions on projects.
 - .1 The protocol is designed to meet the federal requirements, provincial/territorial policies and the objectives of the PWGSC Sustainable Development Strategy (SDS).
- .2 The contractor must implement a solid waste management program.
- .3 Contractors must be instructed to plan for extra project time when implementing CRD waste diversion initiatives.
 - .1 Added labour costs can be recuperated and waste management costs savings can be achieved through reduced tipping fees, avoided haulage costs, and the sale of reusable and recyclable materials.

2.5.2 CONSULTANT RESPONSIBILITIES

- .1 Research and investigate hazardous waste disposal strategies in context of the project and make recommendations.
- .2 Include in the contract documents, a requirement for the contractor to develop a waste reduction and management plan during the construction of this project.
- .3 Identify, on the site plan where large (garbage) bins shall be stored, as well as easy disposal truck access/exit to/from same, to assist the Contractor in reducing waste or re-cycling of materials on and off site.

2.6 TECHNICAL REPORTS

2.6.1 PURPOSE

- .1 This section provides direction and standards for the preparation of reports delivered to PWGSC during all the various stages of project delivery and for specific services such as investigations, studies, analysis, strategies, audits, surveys, programs, plans, etc.
- .2 Technical Reports are official government documents, which are typically used to support an application for approval or to obtain authorization or acceptance and as such they must:
 - .1 Be complete, clear and professional in appearance and organization, with proper reference to related parts and contents in the report;
 - .2 Clearly outline the intent, objectives, process, results and recommendations;
 - .3 Present the flow of information and conclusions in a logical, easy to follow sequence;
 - .4 Be in written narrative, graphic, model (traditional and / or computer generated), and photographic format, which can be web enabled;
 - .5 Ensure that all pages are numbered in sequence; and
 - .6 Be printed double-sided, if hard copies are produced.

2.6.2 STANDARDS FOR PWGSC TECHNICAL REPORTS

- .1 Standard practice for the organization of technical reports requires:



- .1 A cover page, clearly indicating the nature of the report, the date, the PWGSC reference number and who prepared the report;
- .2 A Table of Contents;
- .3 An Executive Summary;
- .4 The body of the report is to be structured such that the reader can easily review the document and locate, respond to and /or reference related information contained elsewhere in the report;
- .5 Appendices used for lengthy segments of the report, supplementary and supporting information and / or for separate related documents.
- .2 The report content must:
 - .1 Ensure that the executive summary is a true condensed version of the report following the identical structure, including only key points and results / recommendations requiring review and / or approval;
 - .2 Use a proper numbering system (preferably legal numbering), for ease of reference and cross-reference;
 - .1 The use of 'bullets' is to be avoided.
 - .3 Use proper grammar, including using complete sentences, in order to ensure clarity, avoid ambiguity and facilitate easy translation into French, if required;
 - .1 The use of undefined technical terms, industry jargon and cryptic phrases are to be avoided.
 - .4 Be written as efficiently as possible, with only essential information included in the body of the report and supporting information in an appendix if needed.

2.6.3 PRE-DESIGN REPORT CONTENT

- .1 Administrative aspects to be included (but not limited to) are:
 - .1 Quality management process for the consultant team;
 - .2 Confirmation that all necessary pre-design documentation required for this project is available and confirmation that the information is still current and up-to-date.
- .2 Regulatory Analysis aspects to be included (but not limited to) are:
 - .1 Preliminary summary of regulatory and statutory requirements, authorities having jurisdiction, and codes, regulations, and standards.
- .3 Program Analysis aspects to be included (but not limited to) are a review and analysis of:
 - .1 Functional program, User Department reports and studies, Space data sheets, Work stations, offices, common areas and commercial space requirements, Laboratories, Data Room requirements, etc.
- .4 Site Analysis aspects to be included (but not limited to) are a review and analysis of:
 - .1 Site features and restrictions (i.e. landscape features, topographical feature, climatic influences, setback requirements, easements, existing buildings, and / or structures.);
 - .2 Subsurface, geotechnical analysis of soils;
 - .3 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications,);
 - .4 Historical/archaeological features, previous uses;
 - .5 Environmental features including sustainable design opportunities.
- .5 Building Analysis aspects to be included (but not limited to) are a review and analysis of:
 - .1 Substructure, including foundations and basement(s), parking;
 - .2 Shell, including superstructure, interior structural systems, exterior enclosure, roofing;
 - .3 Interiors, including interior construction, stairs, interior finishes;



- .4 Services, including conveying (elevators, escalators), plumbing, HVAC, fire protection, electrical, telecommunications, building automation;
- .5 Equipment and furnishings;
- .6 Special construction and demolition, materials abatement.
- .6 Budget, Schedule, and Risk Analysis aspects to be included (but not limited to) are:
 - .1 Updated Class 'D' estimate and revised schedule;
 - .2 Analysis of risk implications and preliminary mitigation strategies.
- .7 Sustainable Development Strategies
 - .1 Proposed policy for the project to minimize environmental impacts consistent with the project objectives and economic constraints, including:
 - .1 Recommendations on Sustainable Development Design standards to be applied to the project;
 - .2 Achievable levels for LEED® or Green Globes certification;
 - .3 Preliminary sustainability targets for water and energy use, waste reduction etc.
 - .2 Environmental impacts and application of the Canadian Environmental Assessment (CEA) Act.

2.6.4 SCHEMATIC DESIGN REPORT CONTENT

- .1 Standard practice for the organization of technical reports requires:
 - .1 Executive Summary;
 - .2 Regulatory Analysis;
 - .1 Preliminary building code analysis,
 - .2 Preliminary zoning analysis,
 - .3 Fire and life safety strategy, and
 - .4 Preliminary standards analysis.
 - .3 Program Analysis;
 - .1 Updated Functional Program requirements,
 - .2 Preliminary horizontal and vertical zoning diagrams,
 - .3 Spatial relationship diagrams,
 - .4 Facilities services strategy,
 - .5 Basic area calculations and analyses.
 - .4 Site Analysis;
 - .1 Drawings, renderings and supporting 3D visualization illustrating the building and site,
 - .2 Site features and restrictions (i.e. landscape features, topographical features, climatic influences, setback requirements, easements, existing buildings and/or structures etc.),
 - .3 Subsurface features,
 - .4 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications etc.),
 - .5 Historical site features,
 - .6 Archaeological features,
 - .7 Environmental features including sustainable design strategies (i.e. storm water management, landscaping etc.).
- .2 Building Analysis and Design Options;
 - .1 Architectural,



- .1 Prepare a site plan indicating relationships, landscape concept, building outlines, main accesses, roadways, vehicular and pedestrian traffic patterns,
- .2 Provide building plans, showing relative disposition of main accommodation areas, circulation patterns, floors, horizontal and vertical space relationships, mechanical / electrical shafts,
- .3 Include elevations, sections and typical wall details for the building envelope,
- .4 Provide perspectives and / or 3D visualization diagrams, and
- .5 Calculate the gross building area and provide a net area summary of all accommodation areas required.
- .2 Civil,
 - .1 Describe the overall impact on the site systems infrastructure,
 - .2 Verify of all site services information,
 - .3 Provide a site plan showing the existing building, proposed site services, building service connections, site drainage, roads, parking and sidewalks, and
 - .4 Include a preliminary analysis of the impact on existing systems, where contributing to existing sewer lines.
- .3 Structural / Seismic,
 - .1 Describe the potential impact on the existing building structure and include any required structural modifications and /or upgrades,
 - .2 Provide a general description of structures, including systems considered and benefits/disadvantages,
 - .3 Include design loads for all load cases, and
 - .4 Prepare concept drawings of structural systems proposed, including typical floor plans, foundations, lateral systems and explanatory sketches.
- .4 Mechanical Engineering,
 - .1 Provide narratives describing the following,
 - .1 Overview,
 - .2 Code & Standards Considerations & Concerns,
 - .3 Potential Energy Conservation Measures,
 - .4 Description of three distinct mechanical options including,
 - .1 Narratives of each option,
 - .2 Discussion of advantages and disadvantages of each,
 - .3 System schematics sufficient to describe each option,
 - .4 Preliminary energy analysis for each,
 - .5 Discussion of recommendations.
- .5 Electrical Engineering,
 - .1 Provide an electrical design synopsis, describing the electrical work in sufficient detail for assessment and acceptance by the Departmental Representative,
 - .1 Include feasibility and economic studies of proposed systems complete with cost figures and loads, and in accordance with Sustainable Development requirements.
 - .2 Prepare a site plan showing the location of electrical and telecommunication service entrances.
 - .3 Prepare floor plans indicating locations and size of,
 - .1 Major electrical equipment and distribution centres,
 - .2 Telecommunications rooms, closets and major conduits,



- .4 Provide Normal and Emergency power distribution details, including a diagram showing the distribution up to distribution centres on each floor,
- .5 Indicate typical lighting concepts for the interior and exterior environments,
- .6 Indicate typical ceiling (or floor) distribution systems for lighting, power and telecommunications, and
- .7 Provide concept descriptions of Fire alarm and Security systems.
- .3 Commissioning;
 - .1 Provide preliminary commissioning plan.
- .4 Cost Management;
- .5 Schedule Management;
- .6 Furniture / Equipment;
 - .1 Prepare a Furniture Recommendation Report based on the Functional Program and on parameters developed in conjunction with the Departmental Representative and the Client / User. Report to include an examination of the following;
 - .1 Procurement process and requirements,
 - .2 Furniture type and layout,
 - .3 Panel screen height,
 - .4 Power requirements,
 - .5 Finishes.
 - .2 Recommendations are to take into consideration current inventory of furniture and reflect the client's vision, functional requirements, proposed planning alternatives, space allocation and project budget.
 - .3 Prepare a Class 'C' cost estimate for refurbishment of existing furniture and / or the purchase of new furniture and equipment.
 - .4 Document scheduling requirements for refurbishment of existing furniture and / or the procurement of new furniture and equipment.
- .7 Budget;
 - .1 Class 'C' Estimates for each option.
- .8 Schedule;
 - .1 Milestone project schedule including allowances for reviews and approvals for each stage of the project life cycle.
- .9 Risk Analysis;
 - .1 Report on any deviations that may affect cost or schedule and recommend corrective measures.
- .10 Sustainable Development Strategies;
 - .1 Indicate how each option can meet the sustainability targets, and
 - .2 Provide energy simulations of the proposed design options, including estimated annual energy cost as predicted by using current energy cost for the appropriate area.
- .11 Response to PWGSC Quality Assurance Report ; and
- .12 Project Log tracking all approved major decisions including those affecting changes to project scope, budget and schedule.

2.6.5 DESIGN DEVELOPMENT REPORT CONTENT

- .1 Executive Summary
- .2 Regulatory Analysis
 - .1 Preliminary building code analysis;



- .2 Preliminary zoning analysis;
- .3 Fire and life safety strategy;
- .4 Preliminary standards analysis
- .3 Program Analysis
 - .1 Updated Functional Program requirements
 - .2 Preliminary horizontal and vertical zoning diagrams;
 - .3 Facilities services strategy;
 - .4 Basic area calculations and analyses;
- .4 Site Analysis
 - .1 Drawings, renderings and supporting 3D visualization illustrating the building and site,
 - .2 Site features and restrictions (i.e. landscape features, topographical features, climatic influences, setback requirements, easements, existing buildings and/or structures etc.);
 - .3 Subsurface features;
 - .4 Municipal infrastructure, subsurface and above grade services, including capacities and limitations (i.e. storm water drainage, fire protection, domestic water, power, telecommunications etc.);
 - .5 Historical site features;
 - .6 Archaeological features;
 - .7 Environmental features including sustainable design strategies (i.e. storm water management, landscaping etc.);
- .5 Building Analysis and Design Options
 - .1 Architectural
 - .1 Prepare a site plan showing the building and Infrastructure items including the following:
 - .1 Pedestrian, vehicular, security, delivery service access,
 - .2 Provide floor plans of each level (including the roof) showing all accommodation required, including all necessary circulation areas, stairs, elevators, and ancillary spaces anticipated for service use. Indicate building grids, modules, and key dimensions.
 - .3 Provide reflected ceiling plans of ceilings with special features.
 - .4 Show elevations of all exterior building facades indicating all doors and windows, accurately sized and projected from the floor plans and sections.
 - .1 Clearly indicate levels for grade, all floors, ceilings, roof and penthouse levels.
 - .5 Develop cross-sections through the building to show floor levels, room heights, inner corridor elevations, etc.
 - .6 Identify primary architectural materials proposed for the exterior and interior of the building, including choice of finishes.
 - .7 Provide plans and preliminary details for millwork, built-in furniture and lab casework.
 - .8 Provide detail sections of walls with special design features requiring illustration and explanation at this stage, such as firewalls, acoustical barriers, security partitions, isolation or separation of laboratory spaces, etc.
 - .9 Special construction and demolition, including heritage conservation and rehabilitation requirements, hazardous materials abatement,
 - .10 Provide sections and details for any spaces requiring acoustic security.
 - .1 Include STC ratings for doors, transfer ducts and other assemblies
 - .2 Civil



- .1 Further refine site plans showing site services and building service connections referenced to proposed building outlines, site access roads and sidewalks, including existing and proposed grades and drainage improvements.
- .2 Indicate locations of manholes (complete with invert elevations), valves, and fire hydrant locations.
- .3 Identify proposed pipe sizes and slopes, where applicable, and include pipe invert elevations at building foundation.
- .4 Identify, by means of Design Summary Sheets, pipe capacity and estimated flows for storm and sanitary sewers. Where contributing to an existing sewer, include analysis of impact on existing systems.
- .5 Provide Hydraulic Analysis of any relevant alterations to existing water distribution system in the vicinity of the proposed building to confirm anticipated maximum available fire flow. Calculate and compare site flows to building site fire flow.
- .6 Provide typical trench and related details, including profiles of below grade services.
- .3 Structural
 - .1 Provide drawings indicating modifications to existing structure and new structural systems, structural materials, cladding details, fireproofing methods and other significant or unusual details.
 - .2 Indicate all design loads, e.g. dead and live loads on all plans with atypical loads marked. Live loads to include localized seismic, wind and snow.
 - .3 Provide brief design calculations including outputs from computerized analysis.
- .4 Mechanical
 - .1 Provide narratives describing the following
 - .1 Overview
 - .2 Code & Standards Analysis
 - .3 Site Services & Utilities
 - .4 Fire Protection Systems
 - .5 Plumbing Systems
 - .6 Heating Systems
 - .7 Cooling Systems
 - .8 Ventilation Systems
 - .9 Exhaust Systems
 - .10 Insulation
 - .11 Humidification Systems
 - .12 Acoustic and sound control measures
 - .13 Controls
 - .14 Energy Conservation Measures & Energy Analysis & Report
 - .2 Provide system schematics for heating water, chilled water, ventilation and plumbing systems.
 - .3 Provide catalogue cut sheets of representative equipment for each type of component to be used on the project.
 - .4 Provide preliminary layout drawings showing locations of all major components.
 - .5 Provide brief design calculations including outputs from computerized analysis.
- .5 Electrical
 - .1 Update the electrical design synopsis for the selected option. Provide data on the total connected load, the maximum demand and diversity factors, and the sizing of the emergency load.



- .2 Elaborate on proposed emergency power scheme and provide preliminary installation details for any emergency generator installation.
 - .3 Indicate metering locations on distribution diagram.
 - .4 Provide typical lighting, power and telecommunication system details for all workspaces.
 - .5 Include lighting design and control schemes for typical lighting arrangements.
 - .6 Elaborate on exterior lighting scheme. Provide typical fixture concepts.
 - .7 Provide a fire alarm riser diagram.
 - .8 Indicate security system major conduit requirements on floor plans.
 - .9 Provide typical security system details (conduit and boxes) that will be included on construction drawings.
 - .10 Provide brief design calculations including outputs from computerized analysis.
- .6 Sustainable Development Strategies:
- .1 Indicate how each option can meet the sustainability targets
 - .2 Provide energy simulations of the proposed design options, including estimated annual energy cost as predicted by using current energy cost for the appropriate area,
- .7 Response to PWGSC Quality Assurance Report

2.7 CODES, ACTS, STANDARDS, REGULATIONS

2.7.1 GENERAL

- .1 The Codes, Acts, Standards and Guidelines listed in the following articles, may apply to this project. The Consultant must identify and analyse the applicable documents in the Code Analysis.
- .2 In all cases the most stringent Code, standard and guideline shall apply.

2.7.2 PWGSC DOCUMENTS AVAILABLE FROM PWGSC PROJECT MANAGER:

- .1 PWGSC Fit-Up Standards: Technical Reference Manual;
- .2 Public Works and Government Services MD Standards – Departmental Representative to provide on request;
 - .1 MD 15000; Environmental Standards for Office Accommodation,
 - .2 MD 15116-2006; Computer Room Air conditioning Systems,
 - .3 MD-15126; Laboratory HVAC (currently in draft form),
 - .4 MD 15128; Laboratory Fume Hoods: Guidelines for owners, design professionals and maintenance personnel – 2008,
 - .5 MD 15129; Guidelines for Perchloric Acid fumehoods and their exhaust systems – 2006,
 - .6 MD 15161; Control of Legionella in Mechanical Systems - 2006,
 - .7 MD 250005; Energy Monitoring and Control Systems Design Guidelines - 2009,
- .3 PWGSC Best Practice; Prescribing indoor humidity levels for Federal Buildings - 2006,
- .4 Public Works and Government Services Commissioning Standards and Guidelines,
- .5 PWGSC Commissioning Manual CP-I version 2006.

2.7.3 CODES AND REGULATIONS:

- .1 The NRC National Building Code of Canada 2010;
- .2 The NRC National Fire Code of Canada, 2010;
- .3 The NRC National Plumbing Code of Canada 2010;
- .4 The NRC Model National Energy Code for Buildings 2011;
- .5 CSA C22.1-09, Canadian Electrical Code Part I Safety Standard for Electrical Installations and CE Code Handbook. Amendments for Provinces;



- .6 Canadian Code for Preferred Packaging;
- .7 National Electrical Manufacturers Association (NEMA);
- .8 Electrical and Electronic Manufacturers' Association of Canada (EEMAC);
- .9 American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE) - ANSI/IEEE C62.41-1991, Surge Voltages in Low-Voltage AC Power Circuits;
- .10 American Society for Testing and Materials (ASTM);
- .11 ASTM F 1137-00(2006), Specification for Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners;
- .12 The Canada Labour Code;
- .13 <http://laws.justice.gc.ca/en/L-2/>
- .14 The Canada Occupational Health and Safety Regulations;
- .15 <http://laws.justice.gc.ca/eng/SOR-86-304/index.html>
- .16 All other Territorial and Municipal Acts, Codes, By-laws and regulations appropriate to the area of concern.

2.7.4 STANDARDS AND GUIDELINES PRODUCED BY THE GOVERNMENT OF CANADA:

- .1 Standards and Directives of the Treasury Board (TB):
 - .1 <http://www.tbs-sct.gc.ca/pol/index-eng.aspx?tree=standard>
 - .2 <http://www.tbs-sct.gc.ca/pol/index-eng.aspx?tree=directive>
 - .3 And including;
 - .1 Accessibility Standard for Real Property,
 - .1 <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12044>
 - .2 Fire Protection Standard.
 - .1 <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316>
- .2 Labour Canada's, Fire Commissioner of Canada Standards;
 - .1 http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/index.shtml.
 - .2 And including,
 - .1 FC-301 Standard for Construction Operations, June 1982,
 - .2 FC-302 Standard for Welding and Cutting, June 1982,
 - .3 FC-311 Standard for Record Storage, May 1979.
 - .4 FC-403 Fire Protection Standard for sprinkler Systems, November 1994
- .3 The Standards and Guidelines for the Conservation of Historic Places in Canada
 - .1 www.historicplaces.ca;
- .4 Labour Canada's, Technical Documents;
 - .1 http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/guidelines/index.shtml
 - .2 And Including,
 - .1 Fire Protection for Information Technology Facilities and Equipment.
- .5 Canadian Food Inspection Agency's Containment Standard for Facilities Handling Plant Pests.
- .6 Public Health Agency of Canada's Laboratory Biosafety Guidelines, 3rd Edition,
- .7 Canadian Council of Animal Care's Guidelines on: Laboratory Animal Facilities – Characteristics, Design and Development.

2.7.5 HEALTH CANADA STANDARDS AND GUIDELINES:

- .1 Guidelines for Canadian Drinking Water Quality – Sixth Edition – 1996;
- .2 Guidelines for Canadian Drinking Water Quality – Summary Table – Dec 2010;



- .3 Guidance for Providing Safe Drinking Water in Areas Of Federal Jurisdiction – Version I – 2005;
- .4 The Canadian Council of Ministers of the Environment (CCME) ;
- .5 Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (CCME, 2003);
- .6 Canada – Wide Strategy for the Management of municipal Waste Water Effluent;
- .7 The Canadian Environmental Protection Act (CEPA, 1999);
- .8 The Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, published in Canada Gazette Part II on June 12, 2008 (Registration SOR/2008-197).

2.7.6 STANDARDS AND GUIDELINES:

- .1 Air Conditioning and Refrigeration Institute (ARI);
- .2 American Conference of Governmental Industrial Hygienists (ACGIH, Industrial Ventilation Handbook);
- .3 Air Diffusion Council (ADC);
- .4 Air Movement and Control Association (AMCA);
- .5 American Association of State Highway and Transportation Officials (AASHTO) Standards
- .6 American National Standards Institute (ANSI);
- .7 ANSI/AIHA Z9.5, Laboratory Ventilation;
- .8 .1 ANSI/NEMA C82.1-04, Electric Lamp Ballasts-Line Frequency Fluorescent Lamp Ballast;
- .9 .2 ANSI/NEMA C82.4-02, Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps;
- .10 ANSI/TIA/EIA-606- Administration Standard for the Telecommunications Infrastructure of Commercial Buildings;
- .11 ANSI Z358.1, Emergency Eyewash and Shower Equipment;
- .12 American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), including but not limited to;
 - .1 ASHRAE Laboratory Design Guide,
 - .2 ASHRAE Standards and Guidelines,
 - .3 ASHRAE Applications Handbook – 2007,
 - .4 ASHRAE HVAC Systems and Equipment Handbook – 2008,
 - .5 ASHRAE Fundamentals Handbook – 2009,
 - .6 ASHRAE Refrigeration Handbook – 2010,
 - .7 ASHRAE 52.2 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size – 2007,
 - .8 ANSI/ASHRAE 55, Thermal Environmental Conditions for Human Occupancy – 2004,
 - .9 ANSI/ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality – 2010,
 - .10 ASHRAE 90.1, Energy Efficient Design of New Buildings – 2010,
 - .11 ASHRAE 105: Standard Method of Measuring and Expressing Building Energy Performance,
 - .12 ASHRAE 110, Method of Testing Performance of Laboratory Fume Hoods,
 - .13 ASHRAE 111; Practices for Measurement, Testing, Adjusting and Balancing of Building HVAC&R Systems,
 - .14 ASHRAE 114; Energy Management Control Systems Instrumentation, and
 - .15 ASHRAE 135; BACnet: A Data Communication Protocol for Building Automation and Control Networks.
- .13 Asphalt Institute Standards for Hot Mix;



- .14 American Society of Mechanical Engineers (ASME);
- .15 American Society for Testing and Materials (ASTM);
- .16 American Water Works Association (AWWA) Standards;
- .17 American Welding Society (AWS);
- .18 Associated Air Balance Council (AABC);
- .19 Canadian Standards Association;
- .20 CSA A23.3-04 (2010) Design of Concrete Structures;
- .21 CSA B51-09 Boiler, pressure vessel and pressure piping Code;
- .22 CSA B52-05 Mechanical Refrigeration Code;
- .23 CSA B64-01 Backflow Preventers and Vacuum Breakers;
- .24 CSA B139-09 Installation Code for Oil Burning Equipment;
- .25 CSA B149.1-10 Natural Gas and Propane Installation Code;
- .26 CSA B651-04 Accessible Design for the Built Environment;
- .27 CSA C22.2 No. 41-07 Grounding and Bonding Equipment;
- .28 CSA S16-09 Design of Steel Structures;
- .29 CSA Z204-1994 Guideline for Managing Indoor Air Quality in Office Buildings;
- .30 CSA Z320-11 Building Commissioning Standard & Check Sheets;
- .31 CSA Z316.5-94, Fume Hoods and Associated Exhaust Systems;
- .32 CAN/CSA-23.1-04 and CAN/CSA-A23.2-04 Concrete materials and methods of concrete construction; and Methods of test and standard practice for concrete CAN/CSA-C22.2 No. 214-94 "Communications Cables";
- .33 CAN/CSA-C22.3 No.3-[98(R2007)], Electrical Co-ordination;
- .34 CAN/CSA-B651-04(R2010), Accessible Design for the Built Environment;
- .35 CAN3 C235-[83(R2010)], Preferred Voltage Levels for AC Systems, 0 to 50,000 V;
- .36 CAN/CSA-T528-93, "Design Guidelines for Administration of Telecommunications Infrastructure in Commercial Buildings", Canadian Standards Association;
- .37 CAN/ULC – S524-06 Standard for the Installation of Fire Alarm Systems;
- .38 CAN/ULC – S537-04 Fire Alarm System Verification Report;
- .39 CAN/ULC – S102-07 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies;
- .40 CAN/ULC – S102.2-07 Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies
CAN/ULC S112-M90 (R2001) Standard Methods of Fire Test of Fire-Damper Assemblies;
- .41 CAN/ULC S115-05 Standard Method of Fire Tests of Fire stop Systems;
- .42 International Mechanical Code – Latest Version;
- .43 Institute of Boiler and Radiation, Hydronic Institute (IBR);
- .44 Manufacturers Standardization Society of Valve and Fitting Industry (MSS);
- .45 National Fire Protection Association (NFPA), including;
 - .1 NFPA 10; Standard for Portable Fire Extinguishers – 2010,
 - .2 NFPA 13; Standard for Installation of Sprinkler Systems – 2010,
 - .3 NFPA 14; Standard for Installation of Standpipe and Hose Systems – 2010,
 - .4 NFPA 24: Standard for the Installation of Private Fire Service Mains and Their Appurtenances-2010,
 - .5 NFPA 30; Flammable and Combustible Liquids Code,
 - .6 NFPA 45; Standard on Fire Protection for Laboratories Using Chemicals,
 - .7 NFPA 1142: Standard on Water Supplies for Suburban and Rural Fire Fighting-2007.



- .46 SEFA I.2, Scientific Equipment & Furniture Association;
- .47 Sheet Metal and Air Conditioning Contractors National Association (SMACNA);
- .48 Transportation Association of Canada (TAC) Guide for Canadian Roads;
- .49 Manual of Uniform Traffic Control Devices (MUTCD);
- .50 Telecommunications Industry Association (TIA);
 - .1 Commercial Building Telecommunications Cabling Standard TIA/EIA-568,
 - .1 Part 1: General Requirements, TIA/EIA-568-B.1,
 - .2 Part 2: Balanced Twisted Pair Cabling Components, TIA/EIA-568-B.2,
 - .3 Addendum 1 - Transmission Performance Specification for 4-pair 100 Ohm Category 6 Cabling, TIA/EIA-568-B.2-1,
 - .4 Optical Fibre Cabling Components Standards, TIA/EIA-568-B.3.
 - .2 ANSI/TIA/EIA-569-A Commercial Building Standards for Telecommunications pathways and spaces,
 - .3 Pathways and Spaces, ANSI/TIA/EIA-569-B,
 - .4 Telecommunications Infrastructure Standard for Data centers TIA-942,
 - .5 J-STD-607-A Commercial Building Grounding and - Bonding Requirements for Telecommunications.
- .51 Underwriters' Laboratories of Canada (ULC);
- .52 ULC/CSA Approval is required for all electrical and mechanical equipment.

2.7.7 STANDARDS AND GUIDELINES FOR TRANSPORTATION

- .1 Canadian Highway Bridge Design Code
- .2 Transportation Association of Canada - Manuals, Guides and Handbooks.

2.8 COMMISSIONING PROCESS

2.8.1 GENERAL

- .1 This section summarizes the PWGSC commissioning process, the requirements and associated roles and responsibilities as they relate to the various phases in the delivery of a project.
- .2 It is to be used as a guide in further developing the commissioning plan, specification and related documents for a project.
- .3 Commissioning is not a replacement for good design and construction practices.
 - .1 It requires coordinated efforts on the part of all parties involved in the Project.
- .4 The Commissioning overlaps the design phase through construction and into the operation phase.
- .5 The PWGSC Commissioning Manual CP.1 4th edition, November 2006, is available for free download at the following site:
 - .1 <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/misceenservice-commissioning/manuel-manual-eng.html>
- .6 The PWGSC Commission Manual CP.2 – Commissioning Glossary is available for free download at the following site:
 - .1 <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/misceenservice-commissioning/manuel-manual-b-eng.html>
- .7 “Commissioning” is a quality assurance process, in which the functional requirements of the Owner/occupant and the operational requirements of facility management are proven to function as intended.



- .8 The “commissioning process” is a planned program of quality management and information transfer that extends through all phases of a project’s development and delivery, up to and including the warranty period.
- .9 The process consists of a series of checks and balances to ensure that the work is designed, installed and proven to operate as intended.
- .10 Commissioning has two main components, functional and operational.
 - .1 The functional component deals with:
 - .1 Security, Health (indoor air quality) and occupant safety;
 - .2 Comfort (temperature, relative humidity, ventilation, air flow patterns, air purity and well being);
 - .3 Cost-effectiveness of design; and
 - .4 Systems and equipment supporting Owner’s functional requirements.
 - .2 The operational component deals with:
 - .1 Operation and Maintenance (O&M) issues; e.g., design review with a particular concern for the operation and maintenance of the systems today and in the future, when repairs are required;
 - .2 Performance evaluation of systems and equipment;
 - .3 Accessibility to O&M Documentation; and
 - .4 Review of the training plan against the current needs now and in the future.

2.8.2 COMMISSIONING PLAN

- .1 The Commissioning Plan will typically be developed by the Contractor through his own Commissioning Agent.
- .2 The Commissioning Plan is the project-specific document and which describes the process for verifying that all built works meet the Investor's requirements within the limits of the working documents.
- .3 It is essential that the Consultant provide specifications that detail requirements for all submittals and testing in each Specification Section in order for the Contractor to properly prepare a complete Commissioning Plan.
- .4 The Commissioning Plan will be reviewed and accepted by the Departmental Representative prior to commencement of construction.
- .5 The Commissioning Plan may require periodic update throughout design.

2.8.3 COMPONENT VERIFICATION

- .1 Component verification sheets (CV) sheets are developed by the Consultant and incorporated in the contract documents to ensure the facility is an operating entity and meets the requirements as described in the Agreement.
- .2 The CV sheets are intended to monitor and track the supply and shop drawing requirements associated with each component. The *Consultant* must verify that the components being installed in the built works are acceptable to their design and the approved shop drawings.
- .3 The commissioning process requires the documentation of all the components installed as part of a system that will have performance verification testing conducted.
- .4 Sample CV sheets for various types of components are to be provided by the Consultant in Div 01.

2.8.4 SYSTEM & INTEGRATED SYSTEM TESTING

- .1 The “performance verification tests” (PVTs) are developed by the Design-Builder to ensure the facility is an operating entity and meets the requirements as described in the Agreement.



- .2 The PVTs are intended to demonstrate the functional performance of the systems & integrated system during the various modes of operation, against the design intent. Each test must be uniquely identified and reflected in the contractor's commissioning schedule.
- .3 Once the contract has been awarded the Design-Builder must monitor the sub-contractor's process to help ensure the timely completion of these tests. The Design-Builder must witness each test. The Design-Builder must provide final certification of the test results. After an acceptable review of the test document, the PWGSC Commissioning Specialist will recommend to the Departmental Representative the acceptance or rejection of the test results.
- .4 Sample PVT sheets for various types of system are to be provided by the Consultant in Div 01.

2.8.5 TEST REQUIREMENTS

- .1 Each CV or PVT shall be uniquely named, numbered and categorized by discipline.
- .2 Tests shall define:
 - .1 Test Purpose;
 - .2 System design narrative;
 - .3 Test Prerequisites;
 - .4 Testing Procedures;
 - .5 Test Comments; and
 - .6 Test Sign-off Block.
- .3 System Performance Verifications Tests
 - .1 These tests have prerequisites that are to be completed and approved prior to conducting the tests, which, may include but are not limited to:
 - .1 CV and PVT sheets developed and accepted,
 - .2 Contractor proving start-up and tests,
 - .3 Manufacturers start-ups,
 - .4 Consultant has certified testing, adjusting & balancing (TAB) results, per TAB specification.
 - .1 TAB work must be completed and approved prior to the control system Pts.
 - .5 Associated control device calibrations and physical point verifications are completed and approved.
 - .1 Note, control system end to end checks to be completed and approved prior to the control system PVTs.
 - .6 Other specified deliverables, i.e. factory test reports, O&M submissions, etc.
 - .7 System performance tests associated with the integrated systems under test,
 - .8 Integrated System Performance Verifications,
 - .9 Fire alarm verifications.

2.8.6 COMMISSIONING (EVALUATION) REPORT

- .1 The Commissioning (Evaluation) Report must provide:
 - .1 An executive summary,
 - .2 Completed CV and PVT sheets,
 - .3 A complete assessment of the project,
 - .4 Lessons learned from this project and any necessary recommendations,
 - .5 Variances between the actual and planned levels of performance,
 - .6 An evaluation of the validation and acceptance process and of the commissioning phase.

2.8.7 OVERVIEW OF ROLES AND RESPONSIBILITIES



- .1 The following provides a general overview of the roles, responsibilities and implementation of the commissioning process. The commissioning process is a logical sequence of verifications from component verifications through to system & integrated system, performance verification testing.
- .2 At completion of the commissioning process all results are documented and audited for acceptance.

2.8.8 MAJOR TASKS AND RESPONSIBILITIES

- .1 Schematic Design and Design Development Phase:
 - .1 Consultant;
 - .1 Develop commissioning strategy,
 - .2 Develop preliminary commissioning plan.
 - .2 Construction Documentation Phase:
 - .1 Consultant;
 - .1 Complete the final commissioning plan,
 - .2 Specify the Commissioning requirements in Div 01 and provide sample Commissioning CV and PCT sheets in Div 01 for Bidders purposes,
 - .3 Develop project specific CV and PVT sheets.
- .3 Construction Phase:
 - .1 Consultant;
 - .1 Monitor and report on contract commissioning activities,
 - .2 Finalize development of job specific CV and PVT sheets,
 - .3 Review and certify component verification sheets as they are completed by the Contractor, and
 - .4 Review commissioning schedule
 - .2 Contractor;
 - .1 Comply with the requirements in the Specifications,
 - .2 Complete the component verification,
 - .3 Conduct the equipment system start-up and proving, and
 - .4 Develop the commissioning schedule, reflecting the PVTs.
- .4 Commissioning Phase
 - .1 Consultant
 - .1 Witness all system and integrated systems tests,
 - .2 Review and certify commissioning test results,
 - .3 Track and compile all commissioning documentation submitted by the contractor and confirm that all commissioning tasks are completed,
 - .4 Incorporate all commissioning documentation into a preliminary commissioning report and recommend interim acceptance.
 - .5 Identify “deferred” commissioning tests due to seasonal constraints, etc.
 - .2 Contractor
 - .1 Comply with the requirements in the specifications,
 - .2 Conduct the system testing, and
 - .3 Conduct the integrated system testing.
- .5 Operating Phase
 - .1 Consultant
 - .1 Provide advice and recommendations for fine tuning, if required,
 - .2 Witness “deferred” commissioning tests,



- .3 Review and certify “deferred” systems test results,
- .4 Incorporate deferred system test results and all other commissioning documentation into a final commissioning report with an executive summary recommending final acceptance.
- .2 Contractor
 - .1 Address warranty issues,
- .6 Evaluation Phase
 - .1 Consultant
 - .1 Provide advice and recommendations during the final evaluation.

2.9 CONSTRUCTION DOCUMENTS

2.9.1 PURPOSE

- .1 This section provides direction in the preparation of construction contract documents (namely specifications, drawings and addenda) for PWGSC.
- .2 Drawings, specifications and addenda must be complete and clear, in order that a contractor can prepare a bid without guesswork. Standard practice for the preparation of construction contract documents requires that:
 - .1 Drawings are the graphic means of showing work to be done, as they depict shape, dimension, location, quantity of materials and relationship between building components.
 - .2 Specifications are written descriptions of materials and construction processes in relation to quality, colour, pattern, performance and characteristics of materials, installation and quality of work requirements.
 - .3 Addenda are changes to the construction contract documents or tendering procedures, issued during the tendering process.

2.9.2 PRINCIPLES FOR PWGSC CONTRACT DOCUMENTS

- .1 PWGSC’s contract documents are based on common public procurement principles.
- .2 PWGSC does not use Canadian Construction Document Committee (CCDC) documents.
- .3 The construction contract and the terms and conditions are prepared and issued by PWGSC, along with all other related bidding and contractual documents.
 - .1 For more detailed information, the clauses are available on the following web site:
 - .2 <http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp>
 - .3 Any questions should be directed through the PWGSC Project Manager.

2.9.3 QUALITY ASSURANCE

- .1 Consultants are required to undertake their own quality control process and must review, correct and coordinate (between disciplines) their documents before issuing them to PWGSC.

2.9.4 ADDENDA

- .1 Format
 - .1 Prepare addenda using the format shown in Appendix ‘C’.
 - .2 No signature type information is to appear.
 - .3 Every page of the addendum (including attachments) must be numbered consecutively.
 - .4 All pages must have the PWGSC project number and the appropriate addendum number.
 - .5 Sketches shall appear in the PWGSC format, stamped and signed.
 - .6 No Consultant information (name, address, phone #, consultant project # etc.) may appear in the addendum or its attachments (except on sketches).
- .2 Content



- .1 Each item should refer to an existing paragraph of the specification or note/detail on the drawings. The clarification style is not acceptable.

2.9.5 SUBMISSIONS

- .1 For each construction document submission, the Consultant shall provide:
 - .1 A completed and signed Checklist for the Submission of Construction Documents (See Appendix 'B')
 - .2 Original specification; printed one side on 216 mm x 280 mm white bond paper.
 - .3 Index, as per Appendix 'C'
 - .4 Reproducible original drawings; sealed and signed by the design authority.
 - .5 Addenda (if required), as per Appendix 'D;' (to be issued by PWGSC)
- .2 Tender information:
 - .1 Include a description of all units and estimated quantities to be included in unit price table.
 - .2 Include a list of significant trades including costs.
 - .1 PWGSC will then determine which trades, if any, will be tendered through the Bid Depository.
- .3 Government Electronic Tendering System (MERX):
 - .1 Consultants shall provide an electronic true copy of the final documents (specifications and drawings) on one or multiple CD-ROM in Portable Document Format (PDF) without password protection and printing restrictions.
 - .2 The electronic copy of drawings and specifications is for bidding purposes only and do not require to be signed and sealed.

2.9.6 PWGSC ROLE

- .1 PWGSC shall provide:
 - .1 General and Special Instructions to Bidders
 - .2 Bid and Acceptance Form
 - .3 Standard Construction Contract Documents

2.10 SPECIFICATIONS

2.10.1 GENERAL

- .1 In preparing project specifications, the Consultant must use the current edition of the National Master Specification (NMS) in accordance with the "NMS User's Guide".

2.10.2 NATIONAL MASTER SPECIFICATION (NMS)

- .1 In preparing project specifications, the Consultant must use the current edition of the National Master Specification (NMS) in accordance with the "NMS User's Guide".
- .2 The NMS is a master construction specification available in both official languages, which is divided into 48 Divisions (Masterformat 2004) and is used for a wide range of construction and/or renovation projects.
- .3 The Consultant retains overriding responsibility for content and shall edit, amend and supplement the NMS as deemed necessary to produce an appropriate project specification, free of conflict and ambiguity.

2.10.3 SPECIFICATION ORGANIZATION

- .1 Narrow scope sections describing single units of work are preferred for more complex work; however, broad scope sections may be more suitable for less complex work.
- .2 Use either the NMS 1/3 - 2/3 page format or the Construction Specifications Canada full-page format.



- .3 For specifications not included in the NMS, but required for the project, follow the number and title recommendations of Masterformat 2004
- .4 Number each page and start each Section on a new page
- .5 Bind specifications
- .6 Include Division I, edited to PWGSC requirements.
- .7 Note: Consultant's name is not to be indicated in the specifications..

2.10.4 TERMINOLOGY

- .1 Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect.
- .2 "Departmental Representative" means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor.
- .3 Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to" or "equivalent to", "to be determined on site by "Departmental Representative", should not be indicated in the specifications as this promotes inaccurate and inflated bids.
- .4 Specifications must permit bidders to calculate all quantities and bid accurately.
 - .1 If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices).
- .5 Ensure that the terminology used throughout the specifications is consistent and does not contradict the applicable standard construction contract documents.

2.10.5 DIMENSIONS

- .1 Dimensions are to be in metric only (no dual dimensioning).

2.10.6 STANDARDS

- .1 As references in the NMS may not be up to date, it is the responsibility of the consultant to ensure that the project specification uses the latest applicable edition of all references quoted.
- .2 Canadian standards should be used wherever possible.

2.10.7 SPECIFYING MATERIALS

- .1 The practice of specifying actual brand names, model numbers, etc., is against departmental policy except for special circumstances.
- .2 The method of specifying materials shall be by using industry recognized standards.
- .3 If the above method cannot be used and where no standards exist, specify by a non-restrictive, non-trade name "prescription" or "performance" specifications.
- .4 In exceptional or justifiable circumstances, or if no standards exist and when a suitable non-restrictive, non-trade name "prescription" or "performance" specification cannot be developed; specify by trade name
- .5 Include all known materials acceptable for the purpose intended, and in the case of equipment, identify by type and model number.

2.10.8 ACCEPTABLE PRODUCTS AND MATERIALS

- .1 The term "Acceptable Manufacturers" must not be used, as this restricts competition and does not ensure the actual material or product will be acceptable.
 - .1 A list of words and phrases that should be avoided is included in the NMS User's Guide.
- .2 Listing of acceptable products or materials is to be an exception, due to a unique specification or for the purpose of assisting bidders in identifying lesser known potential products or materials.



- .3 For exceptions, provide justifiable reasons for listing products and materials and submit to the *Departmental Representative* for acceptance.
- .4 When authorized to list acceptable products or materials, list all, with a minimum of three (3), trade names of products and materials acceptable for the intended purpose.

2.10.9 ALTERNATE PRODUCTS AND MATERIALS

- .1 Alternates must be approved by addendum issued by the *Departmental Representative* in accordance with Instructions to bidders.
- .2 Review applications for approval of alternate products and materials and provide recommendations to the *Departmental Representative*.
- .3 Compare products/materials to specifications. Do not compare product-to-product or material-to-material.

2.10.10 SEPARATE AND ALTERNATE PRICES

- .1 Do not include Separate or Alternate Pricing .

2.10.11 SOLE SOURCING

- .1 Sole sourcing for materials and work may be used for proprietary systems (i.e. fire alarm systems, EMCS systems).
- .2 Substantiation and/or justification will be required.
- .3 Prior to including sole source materials and/or work, the Consultant must contact the *Departmental Representative* to obtain the approval for the sole sourcing.

2.10.12 UNIT PRICES

- .1 Unit prices are used where the quantity can only be estimated (e.g. earth work) and the approval of the Project Manager must be sought in advance of their use.

2.10.13 CASH ALLOWANCES

- .1 Construction contract documents should be complete and contain all of the requirements for the contractual work.
- .2 Cash allowances are to be used only under exceptional circumstances (i.e. utility companies, municipalities), where no other method of specifying is appropriate.
- .3 Obtain approval from the Project Manager in advance to include cash allowances and then use "Section 01 21 00 - Allowances" of the NMS to specify the criteria.

2.10.14 WARRANTIES

- .1 It is the practice of PWGSC to have a 12-month warranty and to avoid extending warranties for more than 24 months.
- .2 When it is deemed necessary to extend a warranty beyond the 12 month period provided for in the General Conditions of the contract, obtain approval from the Project Manager.
- .3 Delete all references to manufacturers' guarantees.

2.10.15 SCOPE OF WORK

- .1 No paragraphs noted as "Scope of Work" are to be included.

2.10.16 SUMMARY AND SECTION INCLUDES

- .1 In Part - I All Sections; do not use (delete):
 - .1 "Summary" and
 - .2 "Section Includes."

2.10.17 RELATED SECTIONS

- .1 In Part I All Sections; do not use (delete)

2.10.18 INDEX



- .1 List all the plans and specification sections with correct number of pages, section names and correct drawing titles in the format shown in Appendix C.

2.10.19 HEALTH AND SAFETY

- .1 Confirm with the Project Manager to determine if there are any instructions to meet regional requirements.

2.10.20 EXPERIENCE AND QUALIFICATIONS

- .1 Remove experience and qualification requirements from specification sections.

2.10.21 PREQUALIFICATION

- .1 Do not include in the specification any mandatory contractor and/or subcontractor prequalification requirements that could become a contract award condition.
- .2 If a prequalification process is required, contact the Project Manager.
- .3 There should be no references to certificates, transcripts or license numbers of a trade or subcontractor being included with the bid.

2.10.22 CONTRACTING ISSUES

- .1 Specifications describe the workmanship and quality of the work.
 - .1 Contracting issues should not appear in the specifications.
- .2 Division 00 of the NMS is not used for PWGSC projects.
- .3 Remove all references within the specifications, to the following:
 - .1 General Instructions to Bidders
 - .2 General Conditions
 - .3 CCDC documents
 - .4 Health and Safety requirements
 - .5 Priority of documents
 - .6 Security clauses
 - .7 Terms of payment or holdback
 - .8 Tendering process
 - .9 Bonding requirements
 - .10 Insurance requirements
 - .11 Alternative and separate pricing
 - .12 Site visit (Mandatory or Optional)
 - .13 Release of Lien and deficiency holdbacks

2.11 DRAWINGS

2.11.1 GENERAL

- .1 Drawings shall be in accordance with PWGSC Western CADD Standards and CSA B78.3.
- .2 Refer to:
 - .1 <http://www.tpsgc-pwgsc.gc.ca/cdao-cadd/ouest-western/tdm-toc-eng.html>
 - .2 The above link is subject to change
 - .3 The Consultant shall check with the Project Manager to ensure that the link is current.
- .3 Download and use the Toolkit which includes drawing border templates, layer utility and drawing standards checker.

2.11.2 TITLE BLOCKS

- .1 Use PWGSC title block for drawings and sketches (including addenda).

2.11.3 DIMENSIONS

- .1 Dimensions are to be in metric only (no dual dimensioning).

2.11.4 TRADE NAMES



- .1 Trade names on drawings are not acceptable.
- .2 Refer to SECTON 2.3, SPECIFICATIONS; 2.3.6 Specifying Materials for specifying materials by trade name.

2.11.5 SPECIFICATION NOTES

- .1 No specification type notes are to appear on any drawing.

2.11.6 TERMINOLOGY

- .1 Use the term "Departmental Representative" instead of Engineer, PWGSC, Owner, Consultant or Architect.
- .2 "Departmental Representative" means the person designated in the Contract, or by written notice to the Contractor, to act as the Departmental Representative for the purposes of the Contract, and includes a person, designated and authorized in writing by the Departmental Representative to the Contractor.
- .3 Notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to" or "equivalent to", "to be determined on site by "Departmental Representative", may not be indicated on the drawings or in the specifications as this promotes inaccurate and inflated bids.
- .4 Specifications & drawings must permit bidders to calculate all quantities and bid accurately.
- .5 If quantities are impossible to identify (i.e. cracks to be repaired) give an estimated quantity for bid purposes (unit prices).
- .6 Ensure that the terminology used throughout the drawings & specifications is consistent and does not contradict the applicable standard construction contract documents.

2.11.7 INFORMATION TO BE INCLUDED

- .1 Drawings must show the quantity and configuration of the project, the dimensions and details of how it is constructed.
- .2 There should be no references to future work and no any information that will be changed by future addenda.
- .3 The scope of work should be clearly detailed and elements not in contract should be eliminated or kept to an absolute minimum.

2.11.8 DRAWING NUMBERS

- .1 Number drawings in sets according to the type of drawing and the discipline involved as follows:
 - .1 The requirements of SECTION 2 PWGSC NATIONAL CADD STANDARD will supersede these requirements, where warranted.
- .2 During the Design Phase of the project each submission and review must be noted on the Notes block of the drawing title, but at the time of construction document preparation, all revision notes should be removed.

Discipline	Drawing
Demolition	D1, D2, etc.
Architectural	A1, A2, etc.
Civil	C1, C2, etc.
Landscaping	L1, L2, etc.
Mechanical	M1, M2, etc.
Electrical	E1, E2, etc.
Structural	S1, S2, etc.
Interior Design	ID1, ID2, etc.

2.11.9 PRINTS



- .1 Print with black lines on white paper.
- .2 Blue prints are acceptable for document submissions at stages outlined in the TOR.
- .3 Confirm with Departmental Representative the size of prints to be provided for review purposes.

2.11.10 BINDING

- .1 Staple or otherwise bind prints into sets.
- .2 Where presentations exceed 20 sheets, the drawings for each discipline may be bound separately for convenience and ease of handling.

2.11.11 LEGENDS

- .1 Provide a legend of symbols, abbreviations, references, etc., on the front sheet of each set of drawings or, in large sets of drawings, immediately after the title sheet and index sheets.

2.11.12 SCHEDULES

- .1 Where schedules occupy entire sheets, locate them next to the plan sheets or at the back of each set of drawings for convenient reference.
 - .1 See CGSB 33-GP-7 Architectural Drawing Practices for schedule arrangements.

2.11.13 NORTH POINTS

- .1 On all plans include a north point.
- .2 Orient all plans in the same direction for easy cross-referencing.
- .3 Wherever possible, lay out plans so that the north point is at the top of the sheet.

2.11.14 DRAWING SYMBOLS

- .1 Follow generally accepted drawing conventions, understandable by the construction trades, and in accordance with PWGSC publications.



3 PROJECT ADMINISTRATION

3.1 GENERAL REQUIREMENTS FOR ALL PROJECTS

- .1 The administration requirements outlined in this section are applicable to all PWGSC projects in Western Region, unless otherwise indicated in the TOR.
- .2 “Project Team” refers to key representatives involved in this project.
- .3 All team members must maintain a professional, cordial and collaborative relationship.

3.2 LANGUAGE

- .1 Construction documents must be prepared in English.

3.3 MEDIA

- .1 The Consultant shall not respond to any media inquiry.
- .2 Direct all media requests to the Departmental Representative.

3.4 PROJECT MANAGEMENT

3.4.1 GENERAL

- .1 Public Works and Government Services Canada administers the project on behalf of Canada and exercises continuing control over the project during all phases of development.
- .2 This project is to be organized, managed and implemented in a collaborative manner.
- .3 The PWGSC project management team, the Consultant, the Contractor and the User Department teams are to work cooperatively at every stage of the design and construction process in order to assure the creation of a successful and meaningful work of architecture.
- .4 Under the leadership of the PWGSC Departmental Representative, all team members are responsible for establishing and maintaining a professional and cordial relationship.

3.4.2 NATIONAL PROJECT MANAGEMENT SYSTEM

- .1 PWGSC uses the National Project Management System (NPMS) for management of its building projects in order to align with the Federal Government approvals processes. Refer to the PWGSC NPMS web site for more details.
- .2 <http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/index-eng.html>
- .3 This GP&S document speaks to services that are normally provided by the professional during the Project Delivery Phase of the NPMS.

3.4.3 DESIGN STAGE

- .1 Pre-design Process
 - .1 The purpose of this phase is to analyze all project requirements including codes, regulations, programming, sustainability, cost, time management and risk to demonstrate a full understanding of the project
 - .2 The approved deliverable will become the formal project work plan and will be utilized throughout the project to guide the delivery.
- .2 Schematic Design Process
 - .1 The purpose of this phase is to explore three distinctly different design options and to analyze them against the project requirements.
 - .2 The Schematic Design will be in sufficient detail to illustrate and communicate the project characteristics.
 - .1 Provide a detailed review and analysis of the project requirements including all updates and amendments to ensure all requirements are fully integrated into the Schematic Design.



- .2 Out of this process the Schematic Design will be accepted and authorization to proceed to Design Development will be based on the accepted Schematic Design.
- .3 The *Departmental Representative*, in concert with others shall choose one option to be further developed.
 - .1 Although the *Consultant* is required to identify a preferred option, the *Departmental Representative* may select another option.
 - .2 The approved deliverable will become the formal project work plan and will be utilized throughout the project to guide the delivery.

3.4.4 IMPLEMENTATION STAGE

- .1 Design Development Process
 - .1 The purpose of this phase is to further develop the design option selected for refinement at the Schematic Design stage.
 - .2 The Design Development documents consist of drawings and other documents to describe the scope, quality and cost of the project in sufficient detail to facilitate design approval, confirmation of code compliance, detailed planning of construction and project approval.
 - .3 This design will be used as the basis for preparation of construction documents.
 - .4 The approved deliverable will become the formal project work plan and will be utilized throughout the project to guide the delivery.
- .2 Commissioning Process
 - .1 “Commissioning” is a quality assurance process, in which the functional requirements of the Owner/occupant and the operational requirements of facility management are tested, verified and proven to function as intended.
 - .2 Commissioning deliverables occur at various phases throughout the project as detailed in section 2.8.
 - .3 Commissioning shall be in accordance with the PWGSC Commissioning Manual CP.1 (2003).
- .3 Construction Document Process
 - .1 The purpose of this phase is to translate design development documents into construction drawings and specifications, for use by the contractor to determine a cost for the work and to construct the building.
- .4 Contract Procurement Process
 - .1 The purpose of this phase is to obtain and evaluate bids/proposals from qualified contractors to construct the project, as per the Construction Contract Documents and to award the construction contract according to government regulations.
- .5 Construction Contract Administration Process
 - .1 The purpose of this phase is to implement the project in compliance with the Construction Contract Documents and to direct and monitor all necessary or requested changes to the scope of work during construction, commissioning and closeout.

3.4.5 CLOSEOUT STAGE

- .1 Post Construction Process
 - .1 The purpose of this phase is to ensure the orderly completion and recording of all aspects of the work during the construction and liaise with the Public Works And Government Services Canada and other agencies as appropriate to close out the project.

3.4.6 ENGINEERING PROJECTS



- .1 Refer to the project specific TOR where the stages for an Engineering Project differs slightly.

3.5 LINES OF COMMUNICATION

- .1 In general, communications will be through the Departmental Representative, unless directed otherwise.
 - .1 This includes formal contact between the Consultant, the Contractor, the PWGSC Project Team and the User Department.
- .2 Direct communication between members of the PWGSC Project Team on routine matters may be required for resolution of technical issues.
 - .1 However, this shall not alter project scope, budget or schedules, unless confirmed in writing by the Departmental Representative.
- .3 During construction tender call, PWGSC will conduct all correspondence with bidders and award the contract.

3.6 MEETINGS

- .1 The Departmental Representative will arrange meetings throughout the project, with representatives from:
 - .1 The User Department;
 - .2 PWGSC
 - .3 The Consultant team; and
 - .4 The Contractor (during the construction phase)
- .2 Standing agenda items shall include:
 - .1 Project Schedule,
 - .2 Cost,
 - .3 Risk,
 - .4 Quality,
 - .5 Health and safety

3.7 CONSULTANT RESPONSIBILITIES

- .1 The “Consultant Team” includes the Consultant’s staff, sub-consultants and specialists.
 - .1 This team must maintain its expertise for the duration of the project.
 - .2 The team must include qualified registered architectural and engineering professionals, with extensive relevant experience, capable of providing all required services.
 - .3 Team members may be qualified to provide services in more than one discipline.
 - .4 The Consultant may expand the team to include additional disciplines.
- .2 The Consultant is responsible for:
 - .1 Obtaining Departmental Representative acceptance for each project phase before proceeding to the next phase.
 - .2 Accurately communicating design, budget, and scheduling issues to staff, sub-consultants and specialists.
 - .3 Co-ordinating input for the Departmental Representative’s Risk Management Plan
 - .4 Co-ordinating the quality assurance process and ensuring that submissions of sub-consultants are complete and signed-off by reviewers;
 - .5 During the design phases:
 - .1 Attend meetings,
 - .2 Record the issues and decisions,
 - .3 Prepare and distribute minutes within two working days of the meeting,



- .4 Ensure all meetings are green i.e. using electronic documents or double-sided hard copies and
- .5 Ensure sub-consultants attend required meetings.
- .6 During the construction phase:
 - .1 Attend meetings and provide site inspection services
 - .2 Ensure sub-consultants provide site inspection services and attend required meetings.
- .3 The Consultant is responsible for:
 - .1 Coordinating and directing the work of all team activities, sub-consultants and specialists
 - .2 Preparing a design that meets project requirements.
 - .3 Obtaining approvals on behalf of the Departmental Representative from the User and other levels of government such as provincial and municipal governments
 - .1 The Consultant shall adjust the documentation to meet the requirements of these authorities.

3.8 PWGSC RESPONSIBILITIES

- .1 Administration
 - .1 PWGSC administers the project and exercises continuing control over the project during all phases of development.
 - .2 The following administrative requirements apply during all phases of the project delivery.
- .2 Reviews
 - .1 PWGSC will review the work at various stages and reserves the right to reject unsatisfactory work at any stage.
 - .2 If later reviews show that earlier acceptances must be withdrawn, the Consultant shall re-design and re-submit at no extra cost.
- .3 Acceptance
 - .1 PWGSC acceptance of submissions from the Consultant simply indicates that, based on a general review, the material complies with governmental objectives and practices, and meets overall project objectives
 - .2 Acceptance does not relieve the Consultant of professional responsibility for the work and for compliance with the contract.
- .4 PWGSC Project Management
 - .1 The Project Manager assigned to the project is the Departmental Representative.
 - .2 The Departmental Representative is directly responsible for:
 - .1 The progress and administration of the project, on behalf of PWGSC
 - .2 Day-to-day project management and is the Consultant's single point of contact for project direction.
 - .3 Providing authorizations to the Consultant on various tasks throughout the project.
 - .3 Unless directed otherwise by the Departmental Representative, the Consultant obtains all Federal approvals necessary for the work.
- .5 PWGSC Professional & Technical Resources Team
 - .1 Provides professional advice and quality assurance reviews of consultant deliverables by Architectural and Engineering professional disciplines.
 - .2 Offers expert technical advice on related project issues, such as functional programming, options analysis, risk management, cost planning, scheduling, contract interpretation, specifications, terms of reference, commissioning, claims management, project delivery approach and project compliance.



- .3 Participates regularly in design phases and may attend (during construction), contractor meetings and conduct field reviews on behalf of the Departmental Representative.
- .4 Provides a Design Manager for the project, who will coordinate the services of the Professional & Technical Resources Team through the Departmental Representative;
 - .1 The Design Manager is the assembler and coordinator of the Resources Team of Architects, Engineers, Interior Designers, Project Planners, Cost Planners and Commissioning Specialists, all with specific areas of expertise.
- .6 PWGSC Commissioning Specialist represents the Departmental Representative's interests in the commissioning process for buildings by:
 - .1 Providing technical advice on O&M matters, operational criteria and quality assurance on the commissioning process throughout the project life cycle;
 - .2 Coordinating and overseeing internal PWGSC commissioning activities during all project phases to ensure that O&M concerns are addressed;
 - .3 Working closely with the Consultant, the Consultant's Commissioning Manager, the Contractor, and the Departmental Representative for Commissioning activities and,
 - .4 Reviews all documentation and reported results relative to commissioning throughout the project delivery.

3.9 USER DEPARTMENT RESPONSIBILITIES

- .1 The User Department Project Leader
 - .1 Is accountable for the expenditure of public funds and delivery of the project in accordance with terms accepted by the Treasury Board
 - .2 Reports to senior User Department executive management
 - .3 Will play several critical roles for the successful implementation of the project, as follows:
 - .1 Coordinate the quality, timing and completeness of information and decisions relating to issues related to the functional performance of the facility;

3.10 REVIEW AND APPROVAL BY PROVINCIAL AND MUNICIPAL AUTHORITIES

- .1 The federal government generally defers to provincial and municipal authorities for specific regulations, standards and inspections but in areas of conflict, the more stringent authority prevails.
- .2 Municipal authority review
 - .1 The purpose of this review is information and awareness;
 - .2 Submissions will be reviewed at the completion of specific phases as outlined in the Required Services Section of the TOR.

3.11 BUILDING PERMITS AND OCCUPANCY PERMITS

- .1 The Consultant will support the Contractor in applying for building permits by providing the required documentation.
 - .1 These documents will be submitted at phases as requested by the municipal authorities.
 - .2 The Consultant will negotiate and resolve building permit related issues.
- .2 The Consultant shall support the Contractor in its application for an occupancy permit and coordinate the resolution of all outstanding issues relating to the permit.
- .3 The Contractor shall pay for the permits on behalf of PWGSC.

3.12 TECHNICAL AND FUNCTIONAL REVIEWS

- .1 This includes both COE reviews and User Department reviews.



- .1 The Purpose of these reviews is technical and functional quality assurance;
- .2 Submissions will be reviewed at the completion of specific phases as outlined in the Required Services Section of the TOR.
- .2 HRSDC Reviews of building projects
 - .1 The purpose of these reviews is for fire protection, health and life safety;
 - .2 Submissions will be reviewed at the completion of specific phases as outlined in the Required Services Section of the TOR.



APPENDIX A CHECKLISTS

A.1 CHECKLIST FOR THE SUBMISSION OF CONSTRUCTION DOCUMENTS

A1.1 TITLE BLOCK

Project Title:		Date:
Project Location:		Project Number:
Consultant's Name:		Contract Number:
PWGSC PM:	Review Stage:	

A1.2 STANDARDS & GUIDELINES

ITEM	Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
I. General The design meets the requirements of;				
.1 National Building Code - 2005				
.2 National Fire Code - 2005				
.3 National Plumbing Code - 2005				
.4 Canada Labour Code				
.5 NFPA 10 - Standard for Portable Fire Extinguishers - 2002				
.6 NFPA 13 - Standard for the Installation of Sprinkler Systems - 2007				
.7 NFPA 14 – Standard for the Installation of Standpipe and Hose Systems - 2003				
2. Treasury Board The design meets the requirements of;				
.1 Chapter 3-6: Fire Protection Standard for Correctional Institutions. http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13580				
.2 Chapter 3-2: Fire Protection Standard for Design & Construction. http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13581				
.3 Fire Protection Standard for Electronic Data Processing				



Equipment. http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=13582				
3. HRSDC Fire Protection Engineer Standards The design meets the requirements of;				
.1 Federal Fire Protection Standards. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/index.shtml				
.2 FC-403 Standard for Sprinkler Systems. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/403/page00.shtml				
.3 FC-311-M Standard for Record Storage. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/311/page00.shtml				
4. Labour Canada Standards The design meets the requirements of;				
.1 Canada Labour Code. http://laws.justice.gc.ca/en/L-2/				
.2 Canada Occupational Health and Safety Regulations. http://laws.justice.gc.ca/eng/SOR-86-304/index.html				
.3 Movable Storage Units Standard. http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/guidelines/mobile.shtml				
5. ASHRAE Standards The design meets the requirements of;				
.1 ANSI/ASHRAE 55 – 2004 Thermal Environmental Conditions for Human Occupancy				
.2 ASHRAE 62.1 – 2007 – Ventilation for Acceptable Indoor Air Quality				
.3 ASHRAE Applications Handbook				
.4 ASHRAE Fundamentals Handbook				



6. PWGSC MD Standards The design meets the requirements of;					
.1	MD 15116 – Computer Room Air Conditioning Systems - 2006				
.2	MD 15128 – Minimum Guidelines for Laboratory Fume Hoods – March 2004				
.3	MD 15129 – Perchloric Acid Fume Hoods - 2006				
.4	MD 15161 – Guidelines for the control of Legionella in mechanical systems				
.5	MD 250005 – Energy Monitoring and Control Systems Design Guidelines - 2009				

A1.3 SPECIFICATIONS – ALL DISCIPLINES

ITEM	Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
1. General The Specifications meet the requirements of;				
.1	The NMS Users Guide. .			
.2	Masterformat 2004			
.3	The current edition of the NMS database			
.4	Deletion of “Related Sections” and “Section Includes” throughout.			
.5	PWGSC GCs for projects tendered through PWGSC			
.6	Consistent use of CCDC or other for privately tendered projects.			
.7	Non-proprietary Specifications.			
.8	Being completely edited with removal of all square choice brackets and Spec Notes.			
.9	Including all relevant Sections as evident by the by the scope of work indicated by the drawings.			
.10	Not referring to the Tender Submission (Contract B)			
.11	Use of command imperative style of language.			
.12	Formatting in either the NMS			



	1/3 - 2/3 page format or the Construction Specifications Canada full page format.				
.13	Each Section starting on a new page and the Project Number, Section Title, Section Number and Page Number show on the header of each page only.				
.14	Specification headers not including date or consultant's name.				
.15	Departmental Representative being used throughout instead of Engineer, PWGSC, Owner, Consultant or Architect. (That is; the contractual entity)				
.16	Non use of notations such as: "verify on site", "as instructed", "to match existing", "example", "equal to", "equivalent to" and "to be determined on site by".				
.17	Dimensions being provided in metric only.				
.18	Indicating the latest edition of all references noted in Part 1 of each Section and that un-used reference Standards are deleted.				
.19	No bolding of text.				
.20	Use of Western Regions standard payments procedures clause.				

AI.4 DRAWINGS GENERAL – ALL DISCIPLINES

ITEM	Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
1. General The Drawings meet the requirements of;				
.1 PWGSC Western Region AutoCAD drafting standards.				
.2 Using the "toolkit" and the "drawing checker".				
.3 All dimensions in SI. No dual dimensioning has been used.				
.4 Providing a north arrow.				
.5 Providing a legend on all relevant sheets.				
.6 Indicating grid lines on all				



	sheets.				
.7	Using standard scales. (1:50, 1:100 etc.)				
.8	Cross referencing and detailing is consistent.				
.9	No Specifications on drawings.				
.10	All notes being written in the command imperative style of speech.				
.11	Not naming the "Contractor" or "sub trades" in the notes.				
.12	Numbering all rooms on all floor plans.				
.13	Using appropriate line weights to differentiate new versus existing versus demolition.				
.14	Using font sizes and types following PWGSC drafting standards.				
.15	Providing separate drawings for demolition and new work.				
.16	Drawing acceptance by the FPE of HRSDC.				

AI.5 DRAWINGS - DISCIPLINE SPECIFIC

ITEM	Checked by:	Progress Submission	Pre-Tender or Tender Ready Submission	Comments:
1. Architectural The Drawings meet the requirements of;				
.1 Providing a Building Code Analysis.				
.2 Indicating fire separations and firewalls and rating.				
.3 Providing a complete site plan with all related details.				
.4 Providing a fully detailed reflected ceiling plan showing lighting, diffusers, sprinkler heads, etc.				
.5 Wall sections being coordinated with the structural and other disciplines drawings.				
.6 Building elevations showing all mechanical and electrical ancillaries.				
.7 Sub surface drainage being shown on the foundation plans and coordinated with all other disciplines.				



.8	Accessibility conforming to CAN/CSA 651-04.				
.9	Coordination of door, finish, hardware schedules in conjunction with fire separations and other disciplines.				
.10	All conflict points identified by BIM have been resolved.				
2. Structural					
The Drawings meet the requirements of;					
.1	Ensuring that General Notes provide additional information that is NOT covered in Specifications.				
.2	Remove all information that is or should be covered by the Specifications.				
.3	Note loads used for design.				
.4	PWGSC policy of using general product descriptions, not proprietary product names followed.				
.5	Table of Abbreviations used provided.				
.6	Section bubbles properly cross referenced.				
.7	Coordination with all other disciplines.				
3. Mechanical					
The Drawings meet the requirements of;					
.1	Separate drawings for Plumbing, HVAC, Fire Suppression, etc.				
.2	Provision for humidification with a clean source of water and no standing water				
.3	Provision of separate HVAC zoning for each unique thermal zone.				
.4	Providing Ventilation to ASHRAE 62.1.				
.5	Meets all requirements of ASHRAE 62.1, Section 5.				
.6	All thermostats are wall mounted.				
.7	The building and systems and equipment meeting all requirements of Section 5 of ASHRAE 62.1.				
.8	Conformance to ASHRAE 55 for;				
.1	Operative				



	temperature .2 Air motion .3 Radiant Temperature Asymmetry .4 Draft .5 Vertical Temperature Difference .6 Floor Surface Temperature .7 Temperature Variations with Time .8 Cyclic Variations .9 Drifts and Ramps				
.9	Providing building cross-sections at all key locations showing clearances for the mechanical installation and access for maintenance.				
.10	Providing sufficient access to mechanical equipment for maintenance.				
.11	Providing mechanical schematics showing design pressure and temperatures as well as all instrumentation and control points labels.				
.12	Design complies with all referenced PWGSC MD Standards.				
.13	Equipment schedules on the drawings coordinate and agree with the Book Specifications.				
.14	Duct attenuation is designed to conform to the STC requirements shown on the architectural drawings.				
.15	Coordination with all other disciplines.				
4. Electrical The Drawings meet the requirements of;					
.1	Separate drawings for Lighting, Power, Fire Alarm System, Communication and Data, Security & CCTV etc.				
.2	Verification and acceptance of the Grounding condition for this project.				
.3	The Overcurrent and Short Circuit Study and confirming all components are fully coordinated.				
.4	The Arch-Flash Study and confirming all components are fully coordinated.				
.5	Providing Arch protection				



	warning signs and labeling.				
.6	Providing lighting Levels in accordance with the National Building Code and IESNA recommendations.				
.7	Not using Armored Cable. Using Armored Cable will be allowed only for jumping from one light fixture to the other in a distance up to 3m.				
.8	Providing identification for each circuit including: .1 Name .2 Voltage, .3 Phase, .4 Amps, .5 Circuit-s .6 Fed from Panel, Destination.				
.9	The Voltage Drop Calculation for each circuit and conformance to CEC requirements.				
.10	Providing phase load and total load for each panel and ensuring proper balance of the Electrical System.				
.11	Coordination with all other disciplines.				
5. Civil The Drawings meet the requirements of;					
.1	The design criteria. (e.g. design vehicle for surface structures, design period and other data for WM.WW, SW and other systems including data and calculations showing design requirements and provided capacities)				
.2	The reference standards. (e.g. minimum service connection pipe or minimum WM size, etc have been used for municipal works, name the local authority whose standards are used.)				
.3	Indicating existing sub-grade soil properties and strength that has been used for the design is indicated on drawings or in a report.				
.4	Indicating Bench Marks used for the Topographic Survey are shown with Northing, Easting and elevation data.				
.5	Indicating the Final				



	Geometric layout for existing and new infrastructures and facilities including centerline of all access roads and pipes. The data provided includes Northing and Easting of all points including start and end point and for all other points wherever there is change in direction, and all horizontal curve data				
.6	Providing typical X-sections for all structures, including type, thickness of various materials for pavement structures, and pipe diameter, material types and thickness and SDR values.				
.7	Providing design grades and slopes.				
.8	Providing details for all infrastructures and facilities indicating all works and type of materials and all geometrics and dimensions..				
.9	Coordination with all other disciplines.				



APPENDIX B SPECIFICATION TOC STANDARDS

B.1 GENERAL

B1.1 SPECIFICATIONS

- .1 List all Divisions, Sections (by number and title) and number of pages.

B1.2 DRAWINGS

- .1 List all Drawings by number and title.

B.2 SAMPLE OF TABLE OF CONTENTS

Project No:	Table of Contents	Index
R.xxxxxx		Page I of xx

SPECIFICATIONS:

- .3
.4
No. Pages
.5 Division 01 – GENERAL REQUIREMENTS
.6 01 11 00 – Summary of Work xx pages
.7 01 14 00 – Work Restrictions xx pages
.8 01 29 00 – Payment Procedures xx pages
.9 Division 02 – EXISTING CONDITIONS
.10 ETC.
.11

DRAWINGS:

- C-I Civil
L-I Landscaping
A-I Architectural
S-I Structural
M-I Mechanical
E-I Electrical



APPENDIX C ADDENDUM FORMAT STANDARD

C.1 SAMPLE OF ADDENDUM FORMAT

CI.1 DRAWINGS

- .1 Indicate drawing number and title, then list changes or indicate revision number and date, and re-issue drawing with addendum.

CI.2 SPECIFICATIONS

- .1 Indicate section number and title.
- .2 List all changes (i.e. delete, add or change) by article or paragraph

Project Title:	Addendum No:
Project Location:	Project Number:
Consultant's Name:	Date:
The following changes in the bid documents are effective immediately. This addendum will form part of the contract documents	
Drawings	
1 AI Architectural	
Specifications	
1 Section 01 00 10 - General Instructions	
.1 Delete article (xx) entirely.	
.2 Refer to paragraph (xx) and revise "xxx", to read "xxxx"..	
2 Section 23 05 00 - Common Work Results - Mechanical	
.1 Add new article (x.xx) as follows:	



APPENDIX D DIGITAL TENDER DOCUMENTS STANDARDS

D.1 CONVENTION STANDARDS FOR TENDER DOCUMENTS

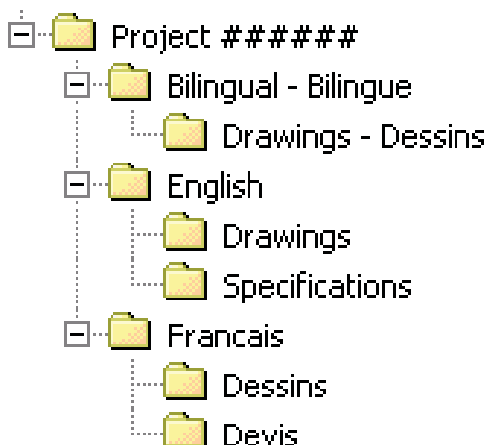
D1.1 USER MANUAL

- .1 Refer to the User manual on directory structure and naming convention standards for construction tender documents on CD ROM.
 - .1 Issued by: Real Property Contracting Directorate, PWGSC,
 - .2 Version 1.0, May 2005.

D1.2 PREFACE

- .1 The Government of Canada (GoC) has committed to move towards an electronic environment for the majority of the services it offers.
- .2 This covers the advertisement and distribution of contract opportunities, including construction solicitations.
- .3 As a result, it is now necessary to obtain a copy of construction drawings and specifications (in PDF format *without* password protection) on one or multiple CD-ROM to facilitate for the GoC the transfer of the construction drawings and specifications electronically to the Government Electronic Tendering System (GETS).
- .4 There is therefore a need to adopt a common directory structure and file-naming convention to ensure that the information made available to contractors electronically and in hard (printed) copy is in accordance with the sequence adopted in the real property industries, both for design and construction.
- .5 This manual defines the standard to be followed by both consultants and print shops at time of formatting and organizing the information, whether drawings and specifications are created by scanning print documents or saved as PDF files from the native software (AutoCAD, NMS Edit, MS-Word, etc...) in which these were created.
- .6 It is important to note that the procedure described in this manual is not an indication that consultants are relieved from following the established standards for the production of drawings and specifications.
- .7 The sole purpose of this manual is to provide a standard for the organization and naming of the electronic files that will be recorded on CD-ROM.

D1.3 DIRECTORY STRUCTURE



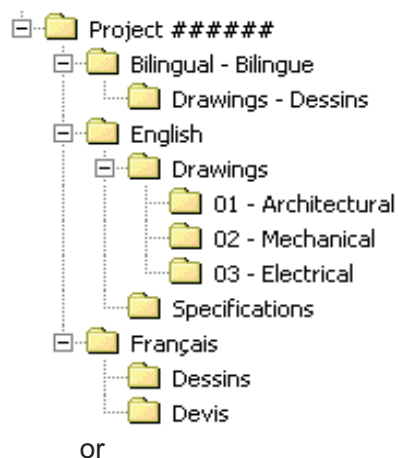


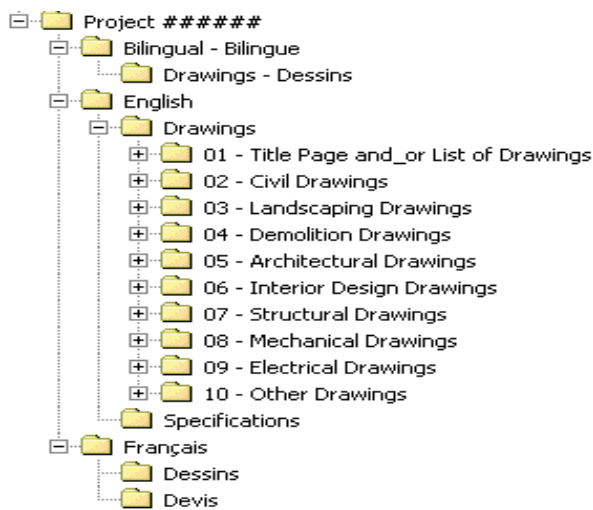
D1.4 1ST, 2ND AND 3RD TIER SUB-FOLDERS

- .1 Each CD-ROM, whether it is for the original solicitation (tender call) or for an amendment (addendum), must have the applicable elements of the following high-level Directory Structure created:
- .2 The following important points are to be noted about the Directory Structure:
 - .1 The “Project #####” folder is considered the 1st Tier of the Directory Structure where ##### represents each digit of the Project Number.
 - .2 The Project Number must always be used to name the 1st Tier folder and it is always required.
 - .3 Free text can be added following the Project Number, to include such things as a brief description or the project title;
- .3 The “Bilingual - Bilingue”, “English” and “Français” folders are considered the 2nd Tier of the Directory Structure. The folders of the 2nd Tier **cannot** be given any other names since GETS uses these names for validation purposes. At least one of the “Bilingual - Bilingue”, “English” and “Français” folders is always required, and these must always have one of the applicable sub-folders of the 3rd Tier;
- .4 The “Drawings - Dessins”, “Drawings”, “Specifications”, “Dessins” and “Devis” folders are considered the 3rd Tier of the Directory Structure. The folders of the 3rd Tier **cannot** be given any other names since GETS also uses these names for validation purposes. There must be always at least one of the applicable 3rd Tier folder in each document.
- .5 IMPORTANT NOTE:
 - .1 The applicable elements of the Directory Structure (1st, 2nd and 3rd Tier folders) are always required and cannot be modified.

D1.5 4TH TIER SUB-FOLDERS FOR DRAWINGS

- .1 The “Drawings – Dessins”, “Drawings” and “Dessins” folders must have 4th Tier sub-folders created to reflect the various disciplines of the set of drawings.
- .2 Because the order of appearance of the sub-folders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the sub-folders in the “Drawings – Dessins”, “Drawings” and “Dessins” folders.
- .3 Note:
 - .1 The first sub-folder must be always reserved for the Title Page and/or the List of Drawings unless the first drawing of the set is an actual numbered discipline drawing.
- .4 Examples of 4th Tier sub-folders for drawings:





DI.6 NAMING CONVENTION - 4TH TIER DRAWINGS

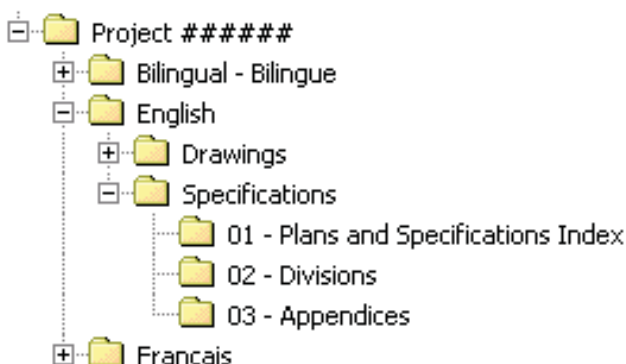
- .1 The 4th Tier sub-folders for drawings must adhere to the following standard naming convention.
 - .1 For the “Drawings” and “Dessins” folders:
 - 1 ## - Y, Where:
 - 1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)
 - 2 Y = The title of the folder
 - 2 Example: 03 – Mechanical
 - .2 For the “Drawings - Dessins” folder:
 - 1 ## - Y – Z, Where:
 - 1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)
 - 2 Y = The English title of the folder
 - 3 Z = The French title of the folder
 - 2 Example: 04 - Electrical – Électricité
- .2 It should be noted that the numbering of the 4th Tier sub-folders is for sorting purposes only and is not tied to a specific discipline. For example, “Architectural” could be numbered 05 for a project where there is four other disciplines before “Architectural” in the set of drawings or 01 in another project where it’s the first discipline appearing in the set.
- .3 It is essential to ensure that the order of the drawings on the CD-ROM be exactly the same as in the hard copy set. GETS will sort each drawing for both screen display and printing as per the following rules:
 - .1 The alphanumerical sorting is done on an ascending order;
 - .2 The alphanumerical order of the sub-folders determines the order of appearance on the screen as well as the order of printing (as an example: all the drawing PDF files in the 01 sub-folder will be printed in alphanumerical order before the drawings in the 02 sub-folder etc...);
 - .3 Each drawing PDF file within each sub-folder will also be sorted alphanumerically. This will determine the order of appearance on the screen as well as the order of printing



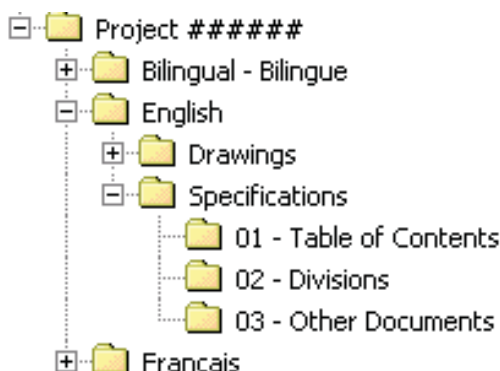
(i.e. Drawing A001 will be printed before Drawing A002, Drawing M02 before Drawing M03, etc...).

D1.7 4TH TIER SUB-FOLDERS FOR SPECIFICATIONS

- .1 The “Specifications” and “Devis” folders must have 4th Tier sub-folders created to reflect the various elements of the specifications.
- .2 Because the order of appearance of the sub-folders on the screen will also determine the order of printing, it is necessary to start with a number the identification name of the sub-folders in the “Specifications” and “Devis” folders.
- .3 Examples of 4th Tier sub-folders for specifications:



or



D1.8 NAMING CONVENTION - 4TH TIER SPECIFICATIONS

- .1 The 4th Tier sub-folders for specifications must adhere to the following standard naming convention.
 - .1 For the “Specifications” and “Devis” folders:
 - 1 ## - Y, Where:
 - 1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)
 - 2 Y = The title of the folder
 - 2 Example: 02 – Divisions
 - .2 It should be noted that the numbering of the 4th Tier sub-folders is for sorting purposes only and is not tied to an element of the specifications.



- .3 It is essential to ensure that the order of the elements of the specifications on the CD-ROM be exactly the same as in the hard copy. GETS will sort each element of the specifications for both screen display and printing as per the following rules:
- .4 The alphanumerical sorting is done on an ascending order;
 - .1 The alphanumerical order of the sub-folders determines the order of appearance on the screen as well as the order of printing (as an example: all the specifications PDF files in the 01 sub-folder will be printed, in alphanumerical order before the PDF files in the 02 sub-folder, etc...);
 - .2 Each specifications PDF file within each sub-folder will also be sorted alphanumerically.
 - 1 This will determine the order of appearance on the screen as well as the order of printing (i.e. Division 01 will be printed before Division 02, 01 - Appendix A before 02 - Appendix B, etc...).

DI.9 NAMING CONVENTION FOR PDF FILES

- .1 Each drawing, specifications division or other document that are part of the tender documents must be converted in PDF format (without password protection) in accordance with the following standard naming convention and each PDF file must be located in the appropriate sub-folder of the Directory Structure.

DI.10 DRAWINGS

- .1 Each drawing must be a separate single page PDF file.
- .2 The naming convention of each drawing must be:
 - .1 X### - Y, Where;
 - 1 X = The letter or letters from the drawing title block ("A" for Architectural or "ID" for Interior Design for example) associated with the discipline,
 - 2 ### = The drawing number from the drawing title block (one to three digits),
 - 3 Y = The drawing name from the drawing title block (for bilingual drawings, the name in both English and French is to appear).
 - .2 Example; A001 - First Floor Details.
- .3 Each drawing that will be located in the appropriate discipline 4th Tier sub-folders must be named with the same letter ("A" for Architectural Drawings for example) and be numbered.
- .4 The drawing number used to name the PDF file must match as much as possible the drawing number of the actual drawing (the exception being when leading zeros are required).
- .5 The following important points about drawings are to be noted:
 - .1 The drawing PDF files within each sub-folder are sorted alphanumerically for both displaying and printing. If there are more than 9 drawings in a particular discipline the numbering must use at least two numerical digits (i.e. A01 instead of A1) in order to avoid displaying drawing A10 between A1 and A2.
 - 1 The same rule applies when there are more than 99 drawings per discipline i.e. three digits instead of two must be used for the numbering (for example M003 instead of M03);
 - .2 If drawing PDF files are included in the "*Bilingual - Bilingue*" folder, these cannot be included as well in the "*English*" and/or "*Français*" folders;
 - .3 If drawings not associated with a particular discipline are not numbered (Title Page or List of Drawings for example), these will be sorted alphabetically.
 - 1 While this does not represent a problem if there is only one drawing in the sub-folder, it could disrupt the order when there are two or more drawings. If the alphabetical order of the drawings name does not represent the order on the



hard copy set, the drawings are to be named as per the following standard convention when converted in PDF format to ensure proper display and printing order.

1 ## - Y, Where:

1 ## = A two digit number ranging from 01 to 99 (leading zeros must be included)

2 Y = The name of the drawing

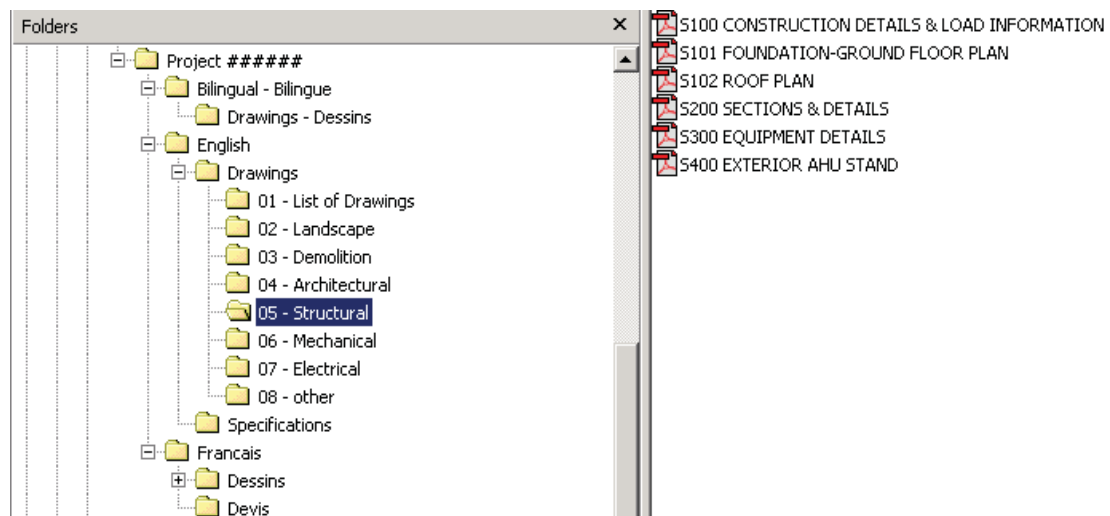
2 Example:

1 01 - Title Page

2 02 - List of Drawings

.4 If numbers are not used in the PDF files name, “*List of Drawings*” will be displayed before “*Title Page*” because “L” comes before “T” in the alphabet.

DI.11 EXAMPLE OF A 4TH TIER DRAWINGS SUBFOLDER’S CONTENT:



DI.12 SPECIFICATIONS

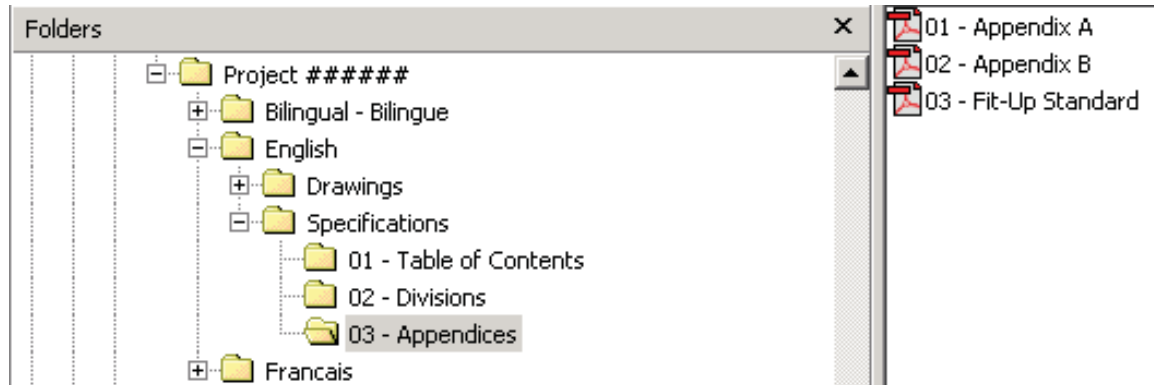
- .1 Each Specifications Division must be a separate PDF file and all pages contained in each PDF file must have the same physical size (height, width).
- .2 The Plans and Specifications Index must also be a separate PDF file.
- .3 If there are other documents that are part of the Specifications (e.g. Appendix or other) these are to be separate PDF files as well.

DI.13 DOCUMENTS OTHER THAN SPECIFICATIONS DIVISIONS

- .1 Because PDF files within the Specifications sub-folders are sorted alphanumerically (in ascending order) for both on screen display and printing order, all files that appear in folders other than the “*Divisions*” sub-folder must be named using a number:
 - .1 ## - Y, Where:
 - 1 ## = Two digit number ranging from 01 to 99 with leading zeros required
 - 2 Y = Name of the document
 - .2 Example: 01 - Plans and Specifications Index



DI.14 EXAMPLE OF A SUB-FOLDER CONTENT (SUB-FOLDER OTHER THAN “DIVISIONS”):



DI.15 SPECIFICATIONS DIVISIONS

- .1 The Specifications Divisions must be named as follows:
 - .1 Division ## - Y, Where:
 - 1 Division ## = The actual word “Division” followed by a space and a two digit number ranging from 01 to 99 (with leading zeros required)
 - 2 Y = Name of the Specifications Division as per CSC/CSI MasterFormat™
 - .2 Example: Division 05 – Metals
- .2 The following important point about specifications is to be noted:
 - .1 The Numbering of the Divisions cannot be altered from CSC/CSI MasterFormat™ even if some Divisions are not used in a given project.
 - 1 For example, Division 05 will always remain Division 05 even if Division 04 is not used for a given project.

DI.16 EXAMPLE OF A “DIVISIONS” SUB-FOLDER CONTENT:





DI.17 CD-ROM LABEL

- .1 Each CD-ROM is to be labelled with the following information:
 - .1 Project Number;
 - .2 Project Title;
 - .3 Documents for Tender;
 - .4 CD X of X.
- .2 Example:
 - .1 Project 123456;
 - .2 Repair Alexandra Bridge;
 - .3 Documents for Tender;
 - .4 CD 1 of 1.



APPENDIX E PDF CREATION STANDARDS

E.1 CONVERTING CONSTRUCTION DRAWINGS INTO PDF

E1.1 REFERENCE GUIDE

- .1 Refer to the basic reference guide on converting construction drawings into portable document format (PDF), Issued by Real Property Contracting Directorate. PWGSC, Version 1.0, May 2005.

E1.2 PREFACE

- .1 Portable Document Format (PDF) is the standard format for documents that are posted on the Government Electronic Tendering System (GETS).
- .2 There is therefore a need to obtain from architectural and engineering consultants an electronic copy of drawings and specifications in PDF for tendering Government of Canada (GoC) construction projects.
- .3 In order to have the highest quality in term of resolution and printing, consultants should to the greatest extent possible have the PDF drawing and specification files derived from the native software in which they were created. Scanning is permissible but only in special circumstances, for example when there is no electronic version of a drawing being included in a construction tender package.
- .4 The purpose of this document is to provide basic information on the conversion of Computer Aided Design and Drafting (CADD) drawings in PDF. Creating a PDF file from a CADD drawing is a relatively simple process once all the necessary configurations and settings are in place.
 - .1 It actually should not take any longer than it would take to create a plot file or to send a drawing to a printer.
 - .2 The information in this guide is not intended to cover all technical aspects of the conversion, which can be done using various methods, but rather to highlight important points about the process and file settings.
 - .3 The conversion of specifications is not covered in this basic reference guide since it does not require any special configuration or setting.
- .5 The information provided in this basic reference guide is not an indication that consultants are relieved from following the established standards for the production of drawings and specifications.
 - .1 The sole purpose of this guide is to provide basic information on the PDF conversion process bearing in mind that additional detailed technical information is available from the various software manufacturers.

E1.3 PRINTER DRIVERS

- .1 Adobe Acrobat provides two different printer drivers that are able to convert CADD drawing into PDF format, Acrobat PDF Writer and Acrobat Distiller.
- .2 Before creating a PDF file from a CADD drawing, a choice must be made as to which one will be used.
- .3 Acrobat PDF Writer is a non-PostScript printer driver that works best with documents that don't contain complex graphics.
- .4 Acrobat Distiller is a PostScript printer driver that works best with documents that contain PostScript fills, Encapsulated PostScript (EPS) graphics, or other complex elements.
- .5 It is recommended that Acrobat Distiller be used to create PDF file of architectural and engineering drawings due to their size and complex graphical nature.



EI.4 PRINTER CONFIGURATION

- .1 Before converting a CADD drawing to PDF, an Acrobat printer configuration file for the PDF paper size needs to be created.
- .2 This function can be done in the CADD software rather than using a custom paper size defined for the Acrobat distiller feature.
- .3 The recommended method is to add a PostScript Adobe plotter in the CADD software and making the necessary setting in terms of media source and size, scale and orientation.
- .4 The configuration can then be re-used to simplify the conversion process for future files that use the same page size.
- .5 As an alternative, although not recommended, a custom-defined size can be created in Acrobat Distiller in the *properties* menu.

EI.5 CREATING PDF FILES

- .1 Once the printer configuration has been done in the CADD software, open Acrobat Distiller and make the necessary settings in the *preferences* and *job options* sub-menu.
 - .1 Ensure that the page size match the sheet size selected in the CADD software to create the file.
 - .2 Particular settings can be saved under different names for future use.
- .2 With the Acrobat Distiller application open, ensure the required sheet size is displayed in the job options window. Then it is simply a matter of bringing the CADD file into the Acrobat Distiller creation box.
- .3 A progress bar will show during the conversion and the newly converted PDF file should open up and be displayed for verification.

EI.6 PDF FILES SETTINGS

- .1 Security
 - .1 Adobe Acrobat contains security features that can be used to secure the files by restricting any changes to the files.
 - .2 Since the files will be posted on MERX and will be used for printing copies, the files must not be password protected and must allow printing.

EI.7 DRAWING ORIENTATION

- .1 The final PDF drawing files must be displayed on the screen in the same direction that the users are intended to view them. This can be achieved by adjusting the setup of the plotter. If the drawing is not oriented properly after the conversion, it can be rotated manually within Adobe Acrobat.

EI.8 FONT TYPE

- .1 In order to avoid any problems during the conversion and to minimize the potential for font display errors, the fonts used for the production of construction drawings must be PostScript or True Type fonts.

EI.9 RESOLUTION

- .1 Since the PDF files will be used for printing, it is important that a proper resolution be selected. It is recommended to select 600 dots per inch (dpi).

EI.10 SCALE

- .1 When choosing the Plot scale in Adobe, it is important to choose the 1:1 scale to ensure the integrity of the scale from which the drawings were created in the CADD software.

EI.11 SCANNING



- .1 Scanning is not recommended and should be done only when the drawing is not available electronically.
- .2 When scanning a drawing, it is important that it be done in real size (scale 1:1) to ensure that the scale remains intact in subsequent printing.
- .3 It is recommended that each scanned drawing be opened and verified to ensure that the resolution, scale and border are of an acceptable quality.

EI.12 FINAL CHECKLIST

- .1 When the drawing file has gone through the PDF conversion, it is recommended to open it and verify the following:
 - .1 That the sheet size displayed is what was intended to be created (the size is viewable in the lower left corner of the drawing);
 - .2 That the orientation of the sheet is correct;
 - .3 That the line types, line weights and fonts match the CADD drawing.
 - .4 That the PDF file is in black and white;
 - .5 That each drawing is a single PDF file;
 - .6 That the PDF file is not password protected and printable.
- .2 If all the items are verified, the PDF file is useable.

EI.13 ADDITIONAL INFORMATION

- .1 For more information about the creation of PostScript and EPS files please refer to the User's Guide of the CADD software being used to produce the drawings. For more information about creating PDF file please refer to the Acrobat Distiller User's Guide and/or visit the Adobe Web site at www.adobe.com.



APPENDIX F DEFINITIONS

F.1 TERMINOLOGY

TERMS	DESCRIPTION
As-builts/Record Drawings	See Record Drawings
Base Building	Refers to the building shell, as opposed to the tenant fit-up. It includes finished floors, exterior walls, interior core, finished ceilings with lighting, and other building systems for the planned general use of the building. Generally, the work for the base building is separate from the work for tenant-fit-ups
Circulation	Space used, primarily by people, to move from one area to another. It includes major as well as secondary aisles.
Client	A term that refers to the client, the client department or user department
Co-location	Placing items together for better organization
Consultant	The word refers both to an individual consultant, or a consultant team. The consultant is generally selected by PWGSC using a Request for Proposal.
Contractor	The company, organization or firm who is responsible for the construction of the project
Consolidation	Reducing the number of co-located items by placing them in a common floor facility to eliminate duplication of space.
Constant dollar estimate	This is an estimate expressed in terms of the dollars of a particular base fiscal year.
Cost Specialist	Refers to the cost estimating, planning and control team or an individual performing these functions.
Current dollar estimate	Refer to: <i>budget year dollars</i>
Budget-year dollars	This is an estimate based on costs arising in each FY of the project schedule, which is escalated to account for inflation and other economic factors affecting the period covered by the estimate Budget year dollars is also be referred to as Nominal dollars or Current dollars
Departmental Representative	The person designated in the contract, or by written notice to the Consultant or Contractor, to act for PWGSC for the purposes of the contract. It can also be a person designated in writing by the Departmental Representative to act on his/her behalf. In most cases, the PWGSC Project Manager is the Departmental Representative
EMV	Expected monetary value of risk event (i.e. cost or saving to the project if risk event occurs)



Final Certificate of Completion	A document issued by the Project Manager after the final inspection by the Project Acceptance Board. The final payment to the Contractor by PWGSC is based on the final certificate of completion
Final Inspection	The inspection performed by the Project Acceptance Board after project completion and after correction of deficiencies identified during Interim Inspection
Fit-up for initial occupancy	The preparation of accommodation for initial occupancy, in accordance with the federal Fit-up Standards. This fit-up may include alternations to the base building and its building systems.
Fit-up of existing space for reuse, Refit	Work required to alter space previously occupied by one organization to meet the requirements of a different organization.
Fit-Up Cost Limits	The funding limits for the fit-up of office accommodation. The limits are based on the average cost per useable square meter, for fit-up elements in specific urban centres across Canada, and are updated from time to time. The limits do not include soft costs or items funded by clients or under base building costs.
Fit-Up Items	Components that are installed removed or relocated to prepare the space for occupancy. They include partition walls, doors, frames, hardware, counters and cabinetry, modifications to base building systems, etc. as detailed in the Fit-up standards. Some base building components are included in consultant scope of work, such as the flooring and the ceiling finishes or telecommunications spaces and related environmental controls.
Focus Group	Group sessions held to establish qualitative requirements. They are most effective at the strategic planning level. They are used primarily to translate the Client Department's mission statement into organizational requirements and to assess planning alternatives
Full-time equivalent.	It measures of labour utilization in the federal government which approximates the actual number of persons "employed" by the government for carrying out the unit of work
Functional space equation	Identifies space requirements (in usable m2) by group along with summary of the total space required for all groups.
Gross Space	The total floor space
High risk	A project (or element of a project) may be assessed as high risk if one or more hazards exist in a significant way and, unless mitigated, would result in probable failure to achieve project objectives
Impact	The result of the occurrence of an event on the project either positive or negative (i.e. a schedule delay as a result of late delivery of a piece of equipment may have a high negative impact on a project; increased access to a construction site due to early departure of occupants in an office space may have positive



	impact on a project). The Impact of individual Risk Events can be qualified as low, medium, high or quantified in terms of time, cost (immediate cost or in-service cost (O&M)) or performance.
Interim Certificate of Completion	The certificates issued by Project manager following the Interim Inspection. Interim payment to the Contractor by PWGSC is based on the interim certificates. This payment takes place of a regular progress claim.
Interim Inspection	The inspection performed by the Project Acceptance Board after substantial completion of the project. A list of deficiencies is prepared, and subject to the Contractor's agreement to correct these, the Project Manager accepts the work and prepares the interim certificates
LEED®	Leadership in Energy & Environmental Design; an environmental rating system
Low risk	A project (or element of a project) should be assessed as low risk if hazards do not exist or have been reduced to the point where routine project management control should be capable of preventing any negative effect on the attainment of project objectives
Medium risk	A project (or element of a project) may be assessed as medium risk if some hazards exist but have been mitigated to the point that allocated resources and focused risk management planning should prevent significant negative effect on the attainment of project objectives
National Project Management System	The system used by PWGSC for management of its projects. It replaces the earlier Project Delivery System (PDS).
PI Forms	Product Information forms; used in commissioning documentation
Probability	The likelihood that an event will occur (i.e. Low, Medium, High)
Project Acceptance Board	A team assembled by the Project Manager to perform interim and final inspections of the Client Department's improvements.
PV Forms	Performance Verification forms; used in commissioning documentation
Record drawings	Drawings used to record field deviations, dimensional data, and changes or deviations from the 'Construction Document-Issued for Construction'. They indicate the work as 'actually' installed. They are also called as-builts
Rentable Space	Usable space plus space occupied by columns, convectors, elevator lobbies and washrooms. It also includes some common base building areas such as telephone and janitorial closets.
Request for Proposal	The document used for requesting consultant services. It includes the Terms of Reference as well as other contracting documents



Risk management	The art and science of identifying, analysing, and responding to risk factors throughout the life of a project and in the best interests of its objectives
Risk Event	A discrete occurrence that may affect the project for better or worse (i.e. late delivery of a piece of equipment is a “risk event” that may cause a schedule delay)
Scheduler	Refers to the Time Scheduler; also referred to as Time Specialist
Space Equation	A spreadsheet that reflects the Client’s organizational structure, functional requirements, and proposed planning alternatives. It is used to determine the total usable area required to accommodate the following: Open and enclosed workstations/worksettings; Support space; Special purpose space circulation factor; Building loss factor; Total population; and Total space required; and Summary by group
Space Optimization	Maximizing the utilization of space.
Special Purpose Spaces	Non-standard spaces required to accommodate activities that are essential to departmental programs. This space is often not suitable for conversion to office accommodation because of its special requirements. Examples include: laboratories, health units or clinics, meeting or training complexes which serve outside groups, processing space, departmental libraries, gymnasiums, warehouses, file or storage areas not allowed by the PWGSC Fit-Up Standards, trade shops, mailrooms, computer training rooms, cash offices and similar spaces requiring special service and security features and hearing rooms.
Support Space	Space for typical office support functions not included in workstation or circulation space but necessary for office operation. The Fit-Up Standards identify specific sizes and ratios for kitchenette / recycling centre / lunchroom / resource areas, shared equipment spaces, meeting rooms, quiet / touch down rooms, printer stations, reception / mail drop / waiting / display areas and coat / storage closets. Limited allowances for “Other” support spaces including non-dedicated workstations, storage rooms, LAN rooms, breakout rooms, interview rooms, training rooms, reading rooms etc. are also identified in the Fit-Up Standards.
Terms of Reference	A document prepared by PWGSC when requesting Consultant services, which forms part of the RFP and is also included in the Consultant Agreement with PWGSC.
Universal Footprint	One standard module which can be multiplied to accommodate



	all office functions including workstations, support space and special purpose space
Usable space, “Walk-on” Space	The space, in M ² , that is actually usable by the occupant. Measurement calculations do not include columns and convectors, building service areas and accessory areas.
Worksettings	Common work areas that support both collaboration and privacy. They include: teaming areas, non-dedicated workstations, privacy nooks, resource areas and multipurpose areas.
Workstations	An enclosed or open area dedicated for the use of individual employees.

F.2 ACRONYMS

ACRONYM	DESCRIPTION
A&E	Architecture & Engineering
AHJ	Authorities Having Jurisdiction
AMP	Asset Management Report
ASAE	American Society of Agricultural Engineers
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASPE	American Society of Plumbing Engineers
BCC	Building components and connectivity
BCR	Building Condition Report
BMM	Building Maintenance Manual
CAD	Computer aided drawing
CCDC	Canadian Construction Document Committee
CBIP	Commercial building incentive program
COE	PWGSC Centre of Expertise
EMCS	Energy Monitoring & Control System
EPA	Effective Project Approval
FHBRO	Federal Heritage Building Restoration Office
FOBS	Federal Office Building Standards (PWGSC)
FTE	Full-time equivalent
HCP	Heritage Conservation Program
HRSDC	Human Resources and Skills Development Canada
IT/MM	Information Technology/Multi-media
MMS	Maintenance management system
NBC	National Building Code
NCA	National Capital Area;
NCR	National Capital Region;
NFBC	National Farm Building Code
NGMA	National Greenhouse Manufacturers' Association
NMS	The National Master Specification used by PWGSC



NPMS	National Project Management System
OAA	Ontario Association of Architects
O&M	Operation and Maintenance
P&S	General Procedures and Standards
PA	Project administration
PI	Product Information
PD	Project Description
PM	Project Manager
PV	Performance verification
PWGSC	Public Works and Government Services Canada
RAIC	Royal Architectural Institute of Canada
RAS	Requirements and Standards
RS	Required Services
RSR	Resident site services
RPCD	Real Property Contracting Directorate
TOR	Terms of Reference